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EDITORIAL.

IN RESPECT OF MEDICAL EDITORIALS.

Among the many striking inefficiencies of the editorial as it is weekly evidenced in our medical publications, sterility of thought, the absence of the power of logic, and "the choking sandy wilderness of wasted words," are insignia which, on account of age and placid acceptance by the medical public in a spirit of enviable toleration, are really so inherent in that form of writing that to exclaim against them on the ground of tenuity, puerility and inanity would no doubt be met by the rejoinder that the editorial, as an influence for good in awakening the combative and reasoning faculties, has never appealed to the thinking part of the medical profession in the light of the momentous. Now despite our conviction that the answer to a severe expression of a critical attitude, would be tinged with the philosophy which is innocent of theorems and has, for its best quality, many surface affectations, we feel that the times are ripe for the Unkind Critic to exercise the unwelcome function of stubborn and uncompromising opponent to "an intellectual vision something more acute than that of a Troglodyte," even though he display the ebullience of a vehement sensibility.

When we indicated that the fulgurant defects were tenuity and its congeners, we had in mind only those cursive attempts which have for their supreme object the obliteration of space, and not the purely medical article transformed by a peculiar necromancy into an editorial. This has but small weight with advocates of what should constitute an editorial, for the reason, that while a scientific paper makes good and profitable reading, its ediotrial reflection is so often a weakening of the writer's ideas, not to say a perversion, due to the editor's bias to and ignorance of its purport, that the unwary reader though moved at times to cry *io* after accomplishing the arduous task of finishing it, readily ascertains upon perusing the original article, that the time wasted over this special dissolvency of thought must be consigned to the insatiable maw of the storehouse for wasted energy. And as if this were not enough to brew

discontent, there lie harsh upon the page devoted to these productions, all sorts and conditions of foreign words and technical terms whose philological distortions are a menace to the composure of the reader of wide linguistic horizons.

Whenever a change is asked if not demanded to increase the happiness of even a small number of people, the query that occurs is—How is it to be effected? Though at first the means at hand may seem too mediocre—a prejudicial spirit that spells narrowness always excuses certain acts on the ground that mediocrity is invincible—there is no doubt that even with the talent that now manipulates the editorial sphere of thought, better things than are wont to crystallize into print, may be effected. A just abhorrence of foreign words, an abhorrence not to be fed forever but encouraged until such time as the editorial mentality can cope with the intricate situations, should be made a dictum; and as for medical terms, the less Latinity they possess, the greater their attractiveness. It is certainly a poor language—and who will say that English is not rich in treasures—that is so emasculated that when a certain synonym is required or the slightest word-shading demanded, recourse must be had to foreign fields. Dickens, in one of his books, describes a character who was always "burrowing in the graves of dead languages," but were this master of fiction living to-day he would have no difficulty in describing not one but many characters of the sort, simply by studying those men of narrow outlook who prepare the editorials for our multifarious medical journals, in which in a sea of verbal nullity there swim, uneasily and ungracefully, the pitiably deformed words and expressions of the dead and living languages.

THE TRANSITION PERIOD IN EDUCATION.

Probably no subject commands wider attention to-day, nor activates keener minds than that of education. None, save the immediate concerns of his own art, has a higher claim to the interest of the physician.

While on the one hand we are apt to feel complacent over the diffusion of a knowledge of the three R's, we at the same time hear on all sides criticisms of present methods and their results. Most noteworthy is the fact that the most insistent and most trenchant expressions of dissatisfaction come from those themselves engaged in the work of education. We know of no other profession presenting a similar phenomenon. Physicians, it is true, may deplore their inability to cope with many of the ills which vex human kind, but it is with a comforting counter-current recollecton of the almost yearly encroachment of science upon the unredeemed territory, and a resigned acceptance of the truth that certain strongholds of the Destroyer must from their very nature to

the last remain unconquered. Jurists may admit the existence of unwise statutes, and the fallibility of human justice, but will probably claim that the results obtained as a whole do not fall far short of the best which the inherent imperfections of human nature will allow. So in other professions, the consensus, if not one of satisfaction, at least does not amount to such dissatisfaction as seeks frequent vent in speech. Teachers, however, when discussing educational matters among themselves, are constantly heard to deplore the disappointing results of present methods, whereas in the presence of non-professionals their attitude is instinctively one of self-defense.

The existence of this phenomenon is not wholly discreditable either to the science of pedagogy or to its exponents. It is in fact largely the product of the latter's intelligence and conscientiousness, and will be as a rule observed to vary directly as their share of these qualities. It is in part an expression of the virtue of humility, and bears out the truth of the lines,

"The fiend that man harries
"Is Love of the Best."

But it also rests in part on a recognition of faults which cry aloud for correction. These very faults are largely the offspring of attempts at betterment. Older methods were seen to be inelastic, to cramp and gall the developing intellect at certain points, and at times to tend rather to suppress than to develop talent, permitting accretion only in predetermined directions, like the Chinese pots, in which children are confined to grow into grotesque shapes.

The system was rigid and inelastic. It was but natural that the pendulum, once liberated, should swing to the opposite extreme, and now we have primary school instruction in clay-modelling and the use of water-colors, while the secondary grades offer elective courses intended to encourage individuality but often permitting a scattering of forces incompatible with attainment. Some of the new ideas are experiments, and in some of the experiments failure is already discernible. The truth is that the time has hardly arrived either to praise or to blame, for our entire educational system, primary and secondary, is now passing through a transition period. It may nevertheless be allowable for those outside the profession of pedagogy, but deeply interested in its results, to point out where, as they see it, these results fall short of what the public which supports the schools has a right to expect.

Among such shortcomings is the fact that our children as a rule are not as far advanced in their studies as European pupils of corresponding age. We are loath to believe that their brains are inferior, although in a judicial inquiry we should keep our minds open to this possibility.

We should also remember that in many parts of this country climatic conditions impose a serious curtailing of the school-year. There are those who believe, with good show of reason, that the wide incidence of malaria is an important factor. But when all is said, it is difficult to escape the conclusion that somehow or somewhere our system is at fault.

Is it perhaps in the sacrifice of essentials to non-essentials? The notions of music and drawing acquired at school are doubtless of benefit, and modern attempts at "nature-study" can only result in good. But why devote time to foreign languages (never to be mastered), higher mathematics and a smattering of the ologies, when the pupils on being graduated can with rare exceptions neither write nor speak English, and often cannot do a single useful thing acceptably?

Athletics are excellent, but is it not true that foot-ball, base-ball, rowing and "track-work" become with many of our college youths an end instead of a means? Diversion is necessary, and a certain amount of youthful folly natural, but there is reason to fear that the unrestrained silliness of Greek-letter fraternities is engendering in some quarters darker and more dangerous characters in the way of intemperance and immorality.

But it is not only in the colleges that the morals of our youth need watching. In the primary and secondary grades, especially in the private schools patronized by the well-to-do, there often exists a spirit of insubordination and disrespect of properly constituted authority calling for the application of the birch-rod of a former generation, in the absence of which the evil learned by the boy or girl at school will, we fear, often outweigh the good.

Let us hope that these are but incidents of a period of transition, and for the sake of the elect, pray that its days may be shortened. The interest of the physician in these matters is second to that of none, not only because he forms an integral part of the community, often with children of his own, and often himself a teacher, but because he is more constantly confronted by, and better than others realizes the sad effects, immediate and remote, of an education physically, mentally or morally defective.

THE PLIGHT OF ST. LOUIS.

In his arraignment of St. Louis, under the above title, Jacob A. Riis in a recent number of *Charities,* makes a series of trenchant remarks about our slums which should cause the beneficent effects of a good jolt to those heavy-lidded citizens, whose conservatism in addition to eyes that are never more than half open, blinds them to glaring defects in our civic morale.

That we are at a most unenviable standstill as regards progress on lines which should bespeak our earnest endeavor, can be accounted for by what Carlyle calls "torpid unveracity of heart;" for though intellectual dimness may have a bearing, the material confusion which rides triumphant the crest of all our reform waves, undoubtedly receives its nourishment from those wells of untruth which are continually fed by the optimistic spirit of the misguided advocates of unveracity. Were we to bring an accusation of intentional untruth against them, they would no doubt express surprise, if not indignation; but though their indignation could be excused on the ground that in their slothful state their untruths were guileless because not backed by intellectual fervor, their surprise would be condemnatory enough to ostracise them from all domains in which living men and women have the right to sojourn. For, surely, he must be a poor substitute for that living entity of observation and enterprise which we expect a man to be to-day, to continue happy in his state with no thought of the disease-laden and poverty-stricken areas outside his immediate environment.

The tenement house question is not a new one in the city of St. Louis; in fact it has been with us so long that even its earliest and best enthusiasts, men who did not suffer from "a bounding swell of poetic fancy" but knew the stern realities of life, are grown a bit callous in its service. This is not at all surprising for if ever a step in the right direction was obstructed by undesirable obstacles, it has been that fledgling in civic progress—the proper tenement house. So obtuse are those who should lend it support, so purblind, so selfish, that one would think that in asking for the material uplift of the poor, who are now the packed occupants of grimy and tumble-down dwellings, one was asking for the Roc's egg! And as if the problem were not large enough to engage our concentrated thought for many days to come, Mr. Riis points out other evils, which are so many cesspools in the cherished picture of human happiness prized by our fellow-citizens. What these evils are the following truthful word-painting, descriptive of barbaric insanitation, from the Civic League's housing committee's report, will show: "The most immediately deadly thing connected with the home industries in St. Louis is the dirt that is poured, baked and frozen into the food-

stuffs manufactured in the dwelling houses. It is difficult to imagine the dirt in which the wholesale and retail milk, butter and ice cream businesses are carried on. The milk is kept in damp cellars, the floors muddy from spilled milk and the water dripping from the iceboxes. These boxes are never aired—seldom drained, and are unbelievably unclean. Milk can be bought, late in the day, sometimes at three cents a quart. This does not sour either,—in the regular way—by next morning. It seems somehow to rot, if that is possible. The bakeries in the cellars and alley houses are beyond description."

In the light of what has not been done, despite considerable agitation, we feel justified in experiencing no immediate worry lest the delightful triumvirate, Poverty, Disease and Crime, will feel so uncomfortable in our welter of vehement sanitary activity, as to wing their way elsewhere. To effect so desirable an end, the force of each citizen must be had to combat those misfortunes which arise from communal inertness. Extraordinary outbreaks for a cause, when abetted only by a handful of citizens, soon spend their force, not only on account of the fewness of the Hopeful, but on account of the disintegration of enthusiasm from the dampening effects of the unjust criticisms of the Apathetic. And speaking of the latter, who will deny that St. Louis can marshall quite an army of the ilk. Indeed, so great has been the obsession of insensibility and indifference, that the only parallel case that comes to our mind, is that of St. Bernard who, according to Morison in his "Life" of the saint, could ride for a whole day along the shore of the Lake of Geneva, and yet when in the evening his comrades spoke some word about the lake, would inquire: "What lake?"

A HUMBLE REMONSTRANCE.

In an address of the French Senate to the first Bonaparte the following pertinent words were used: "Sire, the desire for perfection is one of the worst maladies that can afflict the human mind." Now although this aphorism contains enough grains of truth to warn the majority of mankind from attempting to acquire what in most cases must spell defeat, with bitterness in its train, the unattainability of the will-o'-the-wisp, perfection, has yet another undesirable attribute, in that it has the power of metamorphosing the mildest sort of critic into the sort of vast demands, who displays a deal of irascibility because works of a very high order are not flawless enough "to whisk the stars out of their spheres." Of course to look for perfection in an article in a medical journal is putting a very high stamp on that kind of work, and far be it from us to exact from a writer of the ephemeral in medical literature, the finish, the merit, the erudition which are characteristic of more

durable performances. But when the paper in question falls so far short of even the mediocre, a certain amount of irritability may be pardoned us, especially when the name of the author is a lure to its earnest perusal.

We have often inveighed against the historical article, as it is dressed and furbished in our medical journals, and though the multiplicity of such outpourings have made inroads into our good nature, the upset was always caused, not by a desire for perfection in others but rather by the repetitious monotony of the onslaught. In our readings of articles of the historical brand, we have come across some deserving of praise, but also not a few whose birth into the realms of medical journalism can only be accounted for by the fortuitous occurrence attaching to the glamor of a name. And after reading Dr. Howard Kelly's paper entitled "The Barred Road to Anatomy," in the *Bulletin of the Johns Hopkins Hospital** for July, we are doubly sure of what we said before, that the wrenching awry of our complacency, whilst in the toils of the historical article, is not due at all to disappointment on account of an absence of perfection, but to a vacuity which always results when an already exiguous rill of knowledge is made to bare its many weaknesses on account of repetition.

We have met them many times before, those familiar figures of Burke and Hare. We have known for some time the meaning of the verb "to burke;" and have grown restive under its ineluctable insistence in all articles on "Resurrection Days." The evil doings of the culprits, their machinations to procure bodies, the interest of great surgeons in the ghoulish undertakings, have done yeoman's service for years, as pegs, on which writers of varying degrees have hung the residua of their many readings in this special field of historical research. But such is the imperishable ductility of the subject that no matter how ragged it is, even a mere compendium of bald facts, unadorned by the slightest literary grace, passes muster before a learned historical society.

To deal in vaticinations is taking to oneself too much honor; therefore there is no desire on our part to pose as prophets. But this we do believe—and our belief is not founded on niggling precision—that the tenure of historical societies will be considerably shortened by encouraging stultifications of hackneyed themes. Only in case the writer puts on "Jonson's learned sock" whilst composing his paper, and exercises some literary workmanship, will a tolerant spirit prevail among those doctors who must have medical history as a solatium after their working hours.

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*Read at the meeting of the Johns Hopkins Historical Society, October 14, 1907.

"IS NOT BOILED WATER ALWAYS PERFECTLY SAFE TO DRINK?"

In answer to this query the following hygienic suggestion was made to several hundred thousands of readers (according to the statements of the editor) in the Ladies' Home Journal for June:

> No; boiled water is unsafe to drink, according to a French scientist who last year tested the qualities of such water. He declares that while most germs are killed in a few minutes by boiling the water, some can be killed only by a higher temperature. Boiled water is not regarded as safe for use in surgery because the surgeon cannot feel sure that it is really sterilized. The only water which answers all hygienic demands is that which has been sterilized by heat under pressure. Ordinary boiled water is liable to cause numerous severe and often dangerous stomach and intestinal maladies.

The problem of the relation of water to the health of the human race is not solved by the knowledge that H_2O in a certain quantity, is absolutely necessary to human life; in fact the experiences both in ancient and modern times, that have proved that water used as a necessity of life has been the cause of serious disturbances and ailments in the human organism as well as the initial source of many epidemics of fatal diseases, have but greatly complicated this problem. This experience has led to exhaustive, although not conclusive, studies and investigations into the nature of drinkable water. Referring to the literature on this subject we find that efforts to establish a standard for drinkable water have meant an immense amount of work done in this direction, but the impression we gather is that the labor has to a great degree been a wasted endeavor because based on false conceptions. The labor has, however, enabled us to guard against danger under certain although rare conditions; but, it has not shown as a positive conclusion that for the necessity of an established standard of water certain conditions must be fulfilled; and, moreover, the general experience proves that these conditions are not necessary. What qualities or contents a water must have is a problem as yet by no means solved; and the question whether a difference in the degree of the quantitative and qualitative characteristics of a water, irrespective of artificial contamination, have weight in influencing the health of human beings, is not proved, and it is very unlikely to be proved by the daily observations that everybody has opportunity to make. This does not in any sense mean that the laborious and meritorious work which is being done in this line has no value for hygiene and the general improvement of the conditions of life; on the contrary, it has been a stimulus of great weight in this direction. The pains taken to provide a healthful water have certainly had their compensation for they have been instrumental in improving our welfare, if only indirectly.

We say indirectly because the object has not been so much the improvement of the water supply itself, but the best means as to how to dispose of sewage and all other offal. The so-called improvement of water is in most instances only an appeal to our esthetic sense, since we desire to have before us a water clear, colorless and palatable. The methods to obtain this desired end vary, but practically all of them have the same result: such water is more inviting than the sort that by its aspect, taste or smell, appears objectionable. The hygienic purport is not so much the relative proportions of the mineral, animal and gaseous substances, as the relative quantity of substances derived from the admixture of the products of decomposition of organic matter. That in many parts of the country water containing these substances is used without any detriment to health, is well known; also that by necessity or custom, the esthetic objection is not a tenable one, and, what is more important, the ingredients do no harm. But the one question of high import to the health of the community is, the possibility that these substances are the result of a decomposition of material derived from excretions of diseased individuals,—individuals infected with pathogenic bacteria.

As is well known, the number of pathogenic bacteria that can be transmitted by water used in our daily life, is very small. Practically we have to deal only with the bacillus of typhoid, the vibrio of Asiatic cholera, and, perhaps, with the bacillus of dysentery. The admixture of material containing these pathogenic bacteria, like the feces of typhoid or cholera patients, will of course render a water infectious, at least so soon as sufficient infectious material is present. The danger of this possibility is, as a rule, very slight. The parasitic bacteria concerned in this question usually have little resistance to the natural vital force of the non-pathogenic bacteria present in all waters, and are soon eliminated by the fight for existence. An infection by such a water is only possible when the introduction of pathogenic bacteria is sudden and copious, when the water, into which they are carried, is itself so active that it contains few other bacteria and so leaves the pathogenic bacteria free to live undisturbed. Another danger lies in the distance between the locus of contamination and the locus of utilization of such water, since its bactericidal qualities are seen only after a prolonged period. Such water must cause infection, if in the quantity of water taken by an individual the necessary number of pathogenic bacteria is present. Again, when used for drinking or other purposes, it would necessarily cause a disseminated and multiple infection, as the susceptibility to infection, by the diseases possible through this medium, is almost universal. The infection with typhoid bacilli, for instance, if taking place through water consumed by drinking, would in every instance give rise to the sudden

appearance of an epidemic of typhoid. The same obtains for cholera asiatica. For the latter the epidemic in Hamburg some years ago is a good instance; for typhoid, the recent epidemic in Ithaca, N. Y. These experiences are the unavoidable expression of the effect of contamination or infection by pathogenic bacteria of drinkable water. If typhoid, or cholera, or other infectious diseases, were mostly due to this mode of infection, the human race would be decimated and our own St. Louis would not have at the present time an increase of its inhabitants. The fact is that in St. Louis it cannot be proved that a single case of typhoid fever has been caused by the water supply. Typhoid in St. Louis is entirely endemic, due to direct or indirect transmission from one patient to the other, or to importation from the outside. The same obtains in all other large cities where the improvement of the typhoid morbidity was attributed to the improvement of the water supply. It was, in fact, always only secondary and due simultaneously to improved disposal of sewage and the greater care in preventing typhoid excretions from entering the sewage or the water. The control of the water means only the prevention of the possibility of the occurrence of an epidemic, and of course must be kept up constantly by chemical and bacteriologic tests. Although none of the latter is definitely conclusive as to the presence of danger, they certainly indicate the time when precautionary measures are demanded. Of course in only rare cases, so far, has the presence of typhoid bacilli in the water been demonstrated; still, from experience, a suspicion is often justified; this, however, can be verified only by waiting for about a fortnight to find whether an increase of the typhoid rate takes place. As has already been stated, a simple increase in moderate numbers does not mean water infection; the latter always shows itself by a fulminating epidemic. Nevertheless, the boiling of water during the periods when suspicious conditions obtain, is an immensely important matter. Simply bringing a mass of water to the boiling point will always make that water sterile as to pathogenic bacteria, for they are killed in a few minutes at a temperature much lower than the boiling point. That water, after being brought to boiling, is not absolutely sterile, has no bearing on this point, as the bacteria or spores remaining alive are not pathogenic, except perhaps tubercle bacilli and spores of the tetanus bacillus, but these, even if they should be present, are not likely to cause much harm. For aseptic procedures the principle of complete sterilization has been established, although rarely is such a procedure possible in its entirety.

To object to the boiling of water on the ground that it is not absolutely sterile and, besides, causes pathologic disturbances in the consumer, is a serious mistake, and its world-wide publication can only do

harm. A water boiled is always free from infectivity for typhoid, dysentery and cholera. Epidemics have been curtailed by boiling the infected water. In epidemics and in periods where the possibility of an epidemic is given, the only protection is to boil the water used in the community. Whether in times of no danger boiling is to be resorted to or not, depends entirely upon the taste and bias of the individual. There is to-day, with our system of water control, no need for it. Nor is there hardly any use to boil water that is used for nursing infants. The number of bacteria present in everything we touch and eat is so immense that the rather small number present in water does not increase the quantity very much. The character of these bacteria in both cases is harmless, if not directly beneficial.

On the other hand, there is no objection to boiling the water, and the disturbances alleged by the author referred to, do not follow its use. In suspicious times boiling is the thing to do and no absolute sterilization is needed. To abrogate boiling of water as a means of protection and to ask for vigorous sterilization, makes this protection inaccessible to the community and deprives it of the best means to avoid infection.

OPINION AND CRITICISM.

DR. CABOT AND CHRISTIAN SCIENCE.

In a calm survey of that extraordinary chaos of abortive thoughts, known to the world as "Christian Science," Dr. Richard C. Cabot in *McClure's* for August, gives considerable illuminating information on the vast difference between functional and organic disease. We take it that the majority of doctors to-day know the distinguishing marks, when brought face to face with both forms, and how often a patient who insists upon traversing without pause the circle of illusions and pains, could really be benefited by something approaching mental healing. But, on the other hand, what patient, beset with a functional disturbance, is convinced by plain-speaking and the ballast of all moral philosophy, reason, that her ailment is not of a gravity that should be met by innumerable medicines in the doctor's armamentarium, or even by the glittering knife—things which have dangled so long before the public eye that a doctor's mission is not highly thought of unless they are brought into play. Now neither the doctor nor the patient is really to blame for this peculiar situation in what we are pleased to call human progress. Being only a man of medical affairs, in the patient's opinion—a man who is symbolized as a something whose science has placed a bottle in one hand and a bistoury in the other—his attempt at suggestive therapeutics is combated at every point, not only by an unbelieving scowl, but by a mental attitude which scorns the chronicling of small medical beer, no matter how kindly brewed, in place of something or other that has the large tangibility the public mind invariably associates with the practice of medicine. Thus we see a tentative effort at mental healing throttled by unbelief!

We do not say the patient is altogether to blame, for a performance which must strike the keen observer at once as an instance of mental jejunity. Her environment has been all wrong; her conversational diversions, and the impressions gathered from those who have been hosts to tumors or cancers, have left too deep an impress on her ever-receptive mind. And who will contend that the conversation of to-day has any other pivot around which the maddening whirl of small talk revolves, than the easily constructed one of "the latest surgical operation."

Mr. G. K. Chesterton in writing of Elizabeth Barrett, later Mrs. Browning, says: "She was surrounded by that most poisonous and de-

grading of all atmospheres—a medical atmosphere," and though the sort of atmosphere indicated by the English critic is bad enough in the sick-room, "in the first floor front," where to-day it seems to have its abiding place, it is instrumental in causing incalculable harm, for it creates nothing but protervities and crotchets in many women's minds. Therefore, how are brains unaccustomed to the calm of stoicism—brains only too readily addled by the foam and froth of the perverse—to differentiate between functional and organic disease?

THE OMNIPRESENT SEXUAL QUESTION.

In spite of the formidable array of books and papers and medical sermons on the vital subject of publicity of the sexual question, with a view to the enlightenment of all classes, which have inundated us of late, we must realize that the sincerity and sobriety in our advocacy of new and important means to stem the tide of sexual gratification so as to lessen the potential eventualities which may ensue, has as yet been to small purpose. And this can be accounted for in many ways, principally because without oneness of thought affixed to any movement, confusional ideation obfuscates its simplicity and directness. That men of light and leading, men in our profession who have the moral and physical welfare of communities at heart, are not Laodiceans in the high endeavor to warn and advise, is proved by the more or less scientific manifestations in our various journals. But though talent is not wanting in the effective presentation of their pleas, chimeras, which should be foreign to a matter wholly mundane, are only too often present. If we mistake not, it was Carlyle who said, in speaking of a much agitated subject, "the talent is not the chief question here: the idea—that is the chief question," and the truth of his lines comes home to us every time we read "another opinion on the sexual publicity subject" as advocated by a new luminary in the ranks of fervent votaries. For how can great good come out of a warring mass of argumentative flotsam and jetsam, no matter how talented the gloss, when the one idea which should be primal, is submerged?

Now to further the idea of the proper dissemination of knowledge on this subject, it is not necessary to cry aloud for transcendent purity, as those who are unacquainted with the behests of Nature would desire, or imagine, as Swift did, that nearly every man "combines in himself all the diseases and vices transmitted by ten generations of rakes and rascals." Fortunately for us there is a middle road which should be frequented by those delvers into the problem who desire some recognition from the world at large for clarity of vision and a sanity unalloyed by foolish prejudices. There, our moral reformers would see that men are

not like Thoreau who "ate no flesh, drank no wine, never knew the use of tobacco; had no temptations to fight against, no appetites, no passions," but the victims of a false education which is not so much the result of separateness of their doctors' knowledge of diseases from their early training, as the foolish and accepted idea which, especially, obtains in this country that boys have the right to choose their companions from the walk of life which appeals to them. In this respect Otto Ernst, the well-known German writer, makes some apposite remarks in an article "Von der Sexuellen Aufkläring" (As to Sexual Enlightenment) in a recent number of the Vienna *Neue Freue Presse*. "In my opinion," says Ernst, "what is more important than sexual instruction is the duty which should devolve on all parents to see that their children associate only with those persons whose mentality is of a high order—pure, noble and exalted. If my mind was detached from all thought of sexual matters, even after I had passed my callow days, it was because of association with men and women of this caliber, and my earnest attention to scientific and literary subjects."

LITERARY NOTES.

In the fifth volume of that highly interesting series, "Les Indiscrétions de l'Histoire," by Dr. Cabanès (Librairie Mondiale, Paris), there is an unusual chapter devoted to a medico-historic study of the death of Molière. This posthumous account, which the author happily entitles "The Revenge of Diafoirus"—Diafoirus, by the way, is the doctor in Le Malade imaginaire (The Hypochondriac), whose ridiculously pedantic son sues in vain for the hand of Angélique, the hypochondriac's daughter,—is as minutely documentary as any student of history would wish. Now although Molière made sport of the medical profession by describing Sganarelle in "Le Médicin Malgré Lui" (The Physician in Spite of Himself), Dr. Purgon and the Diafoiruses, father and son, in "Le Malade imaginaire," Dr. Cabanès asserts it is a mistake to accuse the dramatist of medicophobia; and to prove his point he mentions that among his friends Molière counted Gabriel Naudé and Bernier, two disciples of Gassendi, and Nicolas Liénard, dean of the Faculty. There is also the possibility of a friendship with Gui Patin, and it is not improbable that for Scene V. in Act II. of "The Hypochondriac," in which Diafoirus, the elder, describes his son's progress at the medical school in the following language: "Finally, by dint of keeping at it, he obtained his degrees with distinction; and I may say, without vanity, that, during the years that have succeeded, no graduate has made more stir than he has in all the disputations at our college. He has rendered himself formidable, and, whatever thesis he propounded, he argues to the

bitter end on the opposite side. He is resolute in debate, as rigid as a Turk in his principles, never changes his opinion and pursues an argument to the last retreats of logic. But, above all else, what pleases me in him is that, following my example, he attaches himself blindly to the opinions of the ancients, and that he has never desired to listen to or understand the reasonings and experiments of the pretended discoveries of our century, concerning the circulation of the blood and other opinions of like nature," Molière was coached by a former dean of the Faculty, Jean Meauvillain.

Again, to attribute as a number of critics have done, Moilère's attacks on the science of medicine, as it obtained at his time, to a quarrel with a doctor whose lodger he was, or to a misunderstanding on the part of his wife, Armande Béjart, with the wife of a certain doctor, is not only puerile but ridiculous, for it places the dramatist in the unfavorable light of deriving the inspiration for his best comedies from a source as despicable as quarrels among servants. Moreover in Act III., Scene III. of "The Hypochondriac," in a conversation between Argan and his brother Béralde, the dramatist unequivocally shows that his bias was against physic and not against doctors, for he puts into the mouth of Béralde the following pertinent words, apropos of the romance of the former: "But, when you come to learn the truths of things by experience, you find there is nothing in it all, it is like those beautiful dreams which, when you wake, leave you nothing but the regret of having put faith in them." And despite the wonderful progress of medical science, is it not possible to reproduce to-day criticisms similar to those of the great writer of comedies of the eighteenth century? To quote Béralde again, "it is not doctors he (Molière) makes fun of, but the absurdity of physic."

As to Molière's death, a detailed account was published in the *Union médicale* in 1848. According to the author, Dr. Fauconneau-Dufresne, from early youth the dramatist's health had been delicate and he had been subject to attacks of congestive asthma complicated with hemoptysis. His life should have been calm and regular, but fate ordained otherwise, for at the age of forty-two he espoused Armande Béjart, an actress in his company, whose rather youthful age—she was but eighteen—and whose coquetry, not to mention an extraordinary amount of frivolity, so badly accorded with his gravity, that there was some justification for his jealousy. On account of worry his strength was soon drained; added to which his cough became so aggravated that it interfered with his appearing on the stage. At intervals acute attacks of asthma confined him to his bed, especially in 1665, and again in 1667. On Friday, February 17, during the fourth representation of "The

Hypochondriac," in which he played the rôle of Argan, the imaginary invalid, he was seized with an attack of suffocation which, however, did not prevent his finishing the play. The performance over, a harassing cough set in accompanied by expectoration of blood, and this was soon followed by a hemoptysis which resulted in death.

In contradistinction to Dr. Fauconneau-Dufresne's version of the causes which led up to Molière's death, Witkowski is certain that he was phthisical, and that when he died he was in the last stage of pulmonary tuberculosis. This was also the opinion of Germain Sée, who found that the hypothesis advanced by Maurice Raynaud and later by Follet, of Lille, that the disease was an affection of the heart or aneurysm of the aorta, was "devoid of all probability." Dr. Cabanès explains the error into which these investigators fell by asserting that the final excessive hemoptysis was undoubtedly caused by a rupture of an artery in a tuberculous cavity (Rasmussen's aneurysm).

Dr. G. Debombourg in his Lyons Thesis, 1907, "On the Ophthalmo-Tuberculin Reaction as a Medicine for Man" (De l'ophtalmo-réaction à la tuberculine en médecine humaine), says that it is far from being, as was at first supposed, an infallible and inoffensive means of diagnosis. That it is an easy way of making a diagnosis he admits, but adds that we should not forget that its semiotic value is not always absolute, since it obtains in other infections besides tuberculosis—in syphilis and typhoid fever. Experience has already taught many of us that the reaction is quite inconstant, cases of undoubted tuberculosis showing no disturbance; hence after its use we are not in a position to say, with any surety, which are tuberculous and which not. This being the case it can readily be seen that the ophthalmic reaction is inferior to the sero-reaction which is, beyond a doubt, less offensive, more constant, and has the advantage of showing a number of gradations. Moreover, the ophthalmic reaction may be followed by certain local complications capable of causing irremediable alterations in the vision. Thus Dr. Debombourg has seen cases in which follicular conjunctivitis, phlyctenular keratitis and episcleritis have resulted from the application.

ORIGINAL ARTICLES.

SUPERIOR ALTERNATE HEMIPLEGIA.—GUBLER-WEBER TYPE.

By Smith Ely Jelliffe, M. D., Ph. D.,

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Unusual types of hemiplegia are of sufficient interest to report, if only in brief. Even when not coming to autopsy, such reports may be of service, both as affording opportunities for anatomo-clinical differentiation, and as offering an occasion for the recording of features which, while not new, are sufficiently unusual to claim attention.

It is for this reason, and as giving a record for future reference, should one case here noted come to autopsy at some future date, that the following histories of cases exhibiting the Gubler-Weber syndrome are given.

But few communications on this syndrome have appeared in English, since the study of Weber himself in 1863 (Med. Chir. Transactions 1863) (American literature seems to be barren of even case reports), and it is usually held that this author was the first to discuss this particular form of crossed hemiplegia; but such is not the case. Gubler, in his "Memoir sur les paralyses alternes en générale et particulièrement sur l'hémiplégie alterne avec lésion de la protubérance annulaire," which was published in 1859 (Gazette hebdomadaire) following three years after his first contribution to the more general subject of paralysis, due to lesions below the crossing of the seventh nerve (Gubler-Millard syndrome), calls attention to the fact that Luton had previously described the condition of a paralysis of the oculomotor of the left side with a total right hemiplegia, and had localized the lesion in the left cerebral peduncle. This, perhaps the earliest case recorded, is worthy of reproduction, since Weber had entirely overlooked Gubler's study, and few writers since have called attention to it, save d'Astros (Révue de Méd. 14, 1894). The earliest text-book recognition by Gendrin and the monograph by Koechlin should not be overlooked.

History of Luton's Case. Auguste D., musician, entered the Salpetriere, April, 1858. Service M. Briquet.

A first attack of paralysis had occurred six months previously, involving the left side of the body. This paralysis disappeared almost entirely, and the patient was able to take up his occupation. On arising

on the morning of April 10, 1858, he was suddenly taken with a second attack. This came on without loss of consciousness, there being a general, but not complete paralysis on the left side of the body. Motility is chiefly involved, the sensibility being somewhat reduced when compared with the opposite side. There was slight deviation of the lips; the protruded tongue is directed to the left in an evident manner, but may be moved in all directions. The left nostril is slightly dilated. The left eye is wide open, and cannot be closed. The pupil is mobile, vision clear. The right eye is completely closed and cannot be opened: the right pupil is widely dilated, immobile. The eyeball cannot be raised up nor down, no inward movement, but it moves freely outward. The alternating movements of rotation, following the antero posterior axis are doubtful. The vision in this side is obscure. He sees objects vaguely, but without precision. When the patient looks with both eyes, he sees double.

The condition remained stationary for some time. Towards the end of September the patient presented an access of temperature, which was intermittent, following catheterization, and died in coma, five months after his admission.

Autopsy. This showed an atrophy of the right third nerve, at its egress in the interpeduncular space, it being diminished in diameter to about one-half of that of the oculomotor of the other side. The right peduncle, seen from the outside, seemed flattened, patulous, and less rounded than that of the opposite side. Its softening and fluctuation was in contrast with the firm consistence of that of the opposite side. Sections of the right peduncle and neighboring regions showed that the entire substance was reduced to a non-homogeneous boil of a grayish whiteness at certain points, and of a cafe au lait color in others, and of a blackish tint in the part corresponding to the locus niger; that this focus of softening is definitely limited, that it occupies the depth and width of the peduncle, and extends upwards to the neighboring region of the optic thalamus.

In the right cerebral hemisphere two other areas of softening were present; one at the extremity of the sphenoidal lobe, the other at the summit of the occipital lobe. These areas have the size of a nutlet. They are well walled off, and their limits are not diffuse. There was about 60 grams of clear limpid liquid in the ventricle. There was a slight spreading of blood into the lateral ventricles and the arteries at the base were atheromatous.

There were chronic inflammations in the urinary organs, small abscesses in the two kidneys; two areas of gangrene of the right lung, and a gangrenous and purulent area in the right lung. A passive dilatation of the heart. Luton ascribed death to the secondary infection.

Since this case of Luton's, there have been a number of others reported, an extended analysis of which has been given by d'Astros (Rév. de Méd. 14, 1894).

Believing that the Gubler-Weber syndrome is seen rarely, the three case histories to be reported seem worthy of record, as they present certain features concerning which little is known.

The first case that I wish to report is that of Albert Drecker, a laborer, 44 years of age, single. He was admitted to the neurological ward, City Hospital, April 19, 1908. On his admittance the patient was in deep coma, irresponsive, and had come from Bellevue Hospital in that

condition, evidently suffering from an apoplectic stroke as his left side was completely inert. He lay in this condition for about three weeks, being unapproachable, comatose and almost dying, pulse 60, respiration 16 for much of the time, at times the pulse was as low as 50.

Even in this condition, there were marked evidences of a complete left sided hemiplegia, with ptosis of the right eyelid, and dilated right pupil, and external squint of the right eye.

In the first week in May the patient came partially out of his coma for four or five days, was unintelligible, very confabulatory, and fabricating, rambling and incoherent. He then seemed to have another access of bleeding, and went into deep coma, with rapid irregular and feeble heart action, from which, however, by the 20th of May he had made a partial recovery.

From this time on, his mental state began to clear, although at the present time of writing, May 27, 1908, it is not sufficiently clear to warrant the acceptation of all his statements.

He is single, denies leutic infection, but admits to being a heavy drinker. He remembers almost nothing concerning the incidents antecedent to his attack, and very little trustworthy history is obtainable.

His physical examination at the present time shows:

CRANIAL NERVES: *First nerve.* There is no impairment of smell, he recognizes aromatic odors.

Second nerve. Sight is somewhat impaired on the right side, unimpaired on the left. There is no diplopia, and no hemianopsia. The blurring on the right side is largely due to paralysis of accommodation.

Third nerve. This shows marked involvement on the right side; right ptosis. The only fixed position of the right eye is upward and outward, and the movements are limited, the external rectus and the superior oblique apparently being the only muscles spared. Marked dilatation of the right pupil, with diminution of reaction to light on the right side is present. The ocular movements of the left side are normal. The left pupil reacts to light and accommodation, and shows some consensual light reflex; Wernicke's hemiopic pupillary phenomenon not elicitable.

Fourth nerve. Apparently uninvolved on either side.

Fifth nerve. No sensory disturbance in the fifth nerve distribution on either side.

Sixth nerve. No anomalies in the sixth nerve. Patient's mental state prevents accurate tests for diplopia.

Seventh nerve. There are slight traces of a facial palsy on the left side. For the first three weeks, during which the patient was unconscious, he kept his left eye open most of the time, and winking did not seem to be spontaneous. At the present time, however, there seems to be no orbicularis paresis, and the lower branches of the seventh are not markedly involved. The mouth was drawn a little to the right, and there was partial obliteration of the left nasolabial fold, but at the present time there are only slight residuals of left facial involvement.

Eighth nerve. No deafness and no hallucinations.

Ninth nerve. No involvements.

Tenth nerve. The heart action is regular; there is no marked disturbance of breathing at the present time. During the second attack the patient had a very weak, feeble and irregular heart action, and the general impression given was that of cardiac disturbance.

Eleventh nerve. No involvement.

Twelfth nerve. Tongue—left side is a little softer than the right.

Fibrillary tremors are marked. The tongue protrudes very slightly to the left, but is easily movable in all directions.

Spinal Nerves. Marked paralysis of the left arm; it is flaccid, swollen and œdematous, and there is a complete loss of all reflexes. No marked sensory disturbances are obtained, although in this respect the patient's mental state does not admit of an exhaustive analysis. The left leg is less markedly involved than the left arm. The patient is able to flex the thigh and leg, but the movements of extension are very weak. There is distinct atrophy and loss of knee jerk of the left side. There is no Babinski. Slight false clonus. The muscles of the right side are not involved. Knee jerk, wrist jerk, elbow jerk all present on the right side. No clonus, no Babinski, no Oppenheim. No sensory anomalies.

This case then presents a clear cut case of the superior alternate paralysis so well described by both Gubler and Weber. It is now an interesting feature that the patient still shows marked somnolence, and there is absence of any hypertonic phenomena on the paralyzed side, four weeks after the original injury.

Case 2. John Lindsay, age 29, born in the United States, single. The patient was admitted into ward five of the City Hospital on December 7, 1905, first entering Dr. Quimby's ward, and later that of Dr. Collins, through the courtesy of both of whom, I was permitted to see the case in the first instance.

The patient was a laborer, markedly alcoholic. He had suffered from gonorrhea several times, and had had syphilis three years previously.

In the immediate history, the patient complains of recent headaches. There was absence of rheumatism, malaria and typhoid. In childhood he suffered from measles, chickenpox, whooping cough and scarlet fever. Has not heard well in the right ear since he had scarlet fever. The patient, however, gave a history of having fallen a distance of twelve feet six months prior to the onset of his present illness. A week or ten days before his admission to Bellevue Hospital he fell a distance of about three feet, landing on his left shoulder. Shortly following this, although not immediately, he was taken to Hudson St. Hospital, suffering from a left sided paralysis. He remained in the Hudson St. Hospital for five weeks, and was then transferred to Bellevue, where he remained for six weeks, the fragmentary note on transfer being that he had a partial paralysis of the left arm and leg and ptosis of the right eye.

The patient is a well nourished and well built man. At the time of making these notes (May 19, 1906) he is about the ward, is feeling well, but suffers from a left sided paralysis, and from external strabismus of the right eye, with partial ptosis.

Physical examination shows the lungs to be unaffected; the heart is not enlarged; its action is slow, heavy and lagging, the systolic beat at the apex, and the second and pulmonic sounds are accentuated; the aortic sound is sharp in character. The pulse is full, moderate, compressible, both sides synchronous. Abdomen negative.

Cranial Nerves. *First nerve.* No disturbance of smell.

Second nerve. No disturbance of sight, no diplopia, no hemaniopsia.

Third nerve. There is a distinct ptosis of the right eyelid. The right pupil does not react to light or accommodation, and is larger than the left. The left pupil reacts freely to light, and to accommodation. The patient does not see well with the right eye, as there is partial paralysis

of accommodation. Note by internes later shows some reaction of right pupil to light and accommodation. The position of the right eyeball is outward and downward; movements in other directions are impossible.

Patient had had diplopia earlier, and now shows it at times on testing.

Fourth nerve. No palsies observed.

Fifth nerve. No changes in sensation.

Sixth nerve. Superior oblique action apparently present.

Seventh nerve. The patient had a marked facial palsy on the left side when admitted. This improved considerably, but at the present time there is a distinct loss of the naso-labial folds on the affected side. The mouth is drawn to the right (to the left in hospital history). There is a distinct loss of movement on the left side of the face.

Eighth nerve. Impairment of hearing, on the right side, held to be the effect of scarlet fever.

Ninth nerve. No known involvement.

Tenth nerve. No involvement.

Eleventh nerve. Some weakness in the muscles supplied by the eleventh nerve.

Twelfth nerve. The tongue protrudes to the left. Left side is markedly atrophied. Speech is thick but comprehensible.

There is marked paralysis of the entire left side of the body attended with atrophy, increased reflexes throughout, with increased ankle jerk, knee jerk, clonus and Babinski on the left side. The leg is freely movable, the arm less so and is œdematous. The right side shows some tenderness of the thigh muscles, with sluggish reflexes. No œdema of either lower extremity. No sensory disturbances either to heat, cold or pain. The fundus is negative. Mental state is stupid. Patient sleeps a great deal in the wards. He left shortly after my examination, went home and died some six months later—cause unknown.

Case 3. Annie Zimmerman, aged 30, born in Austria, was admitted to the City Hospital on the 4th June, 1906, and entered the Neurological Ward on 1st October, 1906, under the service of Dr. Pritchard, to whom I am indebted for the privilege of reporting the case.

The patient was in a semi-stuporous condition when first seen on 1st October. On October 3rd this condition became very marked and the patient could not be roused. This gradually cleared up, but she still remained very drowsy, and seemed to sleep practically all the time when not disturbed. She was unable to give much of a history, although when she came into the hospital she said that for the past three years she had been suffering from dizziness, and had had attacks when she would fall to the ground. For a year or so she had been unable to do much work, and complained of her feet and hands. The patient was of limited intelligence.

There was no history obtainable of an acute onset.

Examination showed a poorly nourished woman, apparently 35 years of age, skin pigmented. Sounds in the chest were practically normal, there being only a slight dullness over the left apex. There heart sounds were clear. There were no murmurs, pulse was regular and of good volume, and tension not exaggerated.

Examination of the nervous system showed the following:

First nerve. No anomalies of smell.

Second nerve. The patient did not see very well in the right eye, owing to paralysis of accommodation. No optic nerve defect.

Third nerve. Ptosis of the right eyelid, slight lateral nystagmus, right pupil larger than the left, does not react to light or accommodation. Restriction of movement of the right eyeball; impossible to move it inward. It occupies an external upward position.

Fourth nerve. The patient not in a condition to respond to tests for diplopia.

Fifth nerve. No changes observed.

Sixth nerve. No changes known but difficult to separate.

Seventh nerve. Marked facial palsy on the left side, involving also branches of the facial. Jaw pulled somewhat to the right. Tongue protruded to the right, speech thick, somewhat incoherent. Patient unable to repeat complicated phrases.

Eighth nerve. The patient could hear watch at five inches on the right side, on the left could not hear watch at all.

Ninth nerve. [Could not test.]

Tenth nerve. No anomalies of respiration or heart action.

Eleventh nerve. [Could not test.]

Twelfth nerve. Taste apparently unaffected.

There is a very marked hemiplegia of the entire left side. The left arm is weak in all its movements, tendon reflexes are exaggerated on the left side. There are no changes in the tactile or temperature sense. Slight ataxia of the hands and arm on left side. Right upper extremity is normal. The lower extremities show paralysis of the left side, with increased tendon reflexes, with ankle clonus and slight Babinski on the left side. No anesthesia to touch or temperature. Both sides, deep sensibilities normal.

There is slight rigidity throughout the whole left side, although muscular power is not entirely gone. All the movements are slower on the left side. There is slight anesthesia to touch and temperature on the right side of the face, although it is difficult to say just how much of this is stupidity or actual observation.

The patient remained in the hospital for several months in practically the same condition; on November 30, 1906, he developed a pneumonia, and died December 10, 1906. Autopsy was refused.

The parallelism in these three cases is very striking. They are typical illustrations of the Gubler-Weber syndrome, the first case showing the symptoms at the onset, with flaccid paralysis and loss of knee jerk, no Babinski, no contractures, as yet; whereas the second case shows the later stages when contractures and spasticity have set in, with increased reflexes throughout. The third case is typical of those that go on to death by exhaustion.

Since hemorrhages, or softening in the cerebral peduncles are due in the first place to a rupture, and in the second to an obliteration of the arteries that supply the peduncle, a few words concerning the distribution of these arteries in the different regions of the peduncle may not be out of place. Alezais and d'Astros (Journal de l'Anatomie et de la physiologie, 1892, p. 519) have shown, very distinctly, that the posterior cerebral artery and its branches give rise to practically all the arteries which supply the peduncle. When obliteration takes place, the general softening that results is conditioned very largely by the frequent and full anastomosis of the arterial trunks which in this situation are

very rich. So far as hemorrhage is concerned, the only thing that need concern one are the nourishing arteries that go directly to the peduncle. These arise, for the most part, from the trunk of the posterior cerebral, usually in the ascending portion before the giving off of the posterior communicating artery; may be in the recurved portion of the circumpeduncular. A certain number of the arteries that go to nourish the peduncle come off from a portion of the posterior cerebral, which coming from the ascending branch are distributed to the corpora quadragemina and later pass into the peduncle. d'Astros has termed this artery the peduncular jumelle. Several other branches rise as low down as the superior cerebellar, and as high up as the posterior communicating, or even the middle cerebral.*

All of these arteries d'Astros divides into five groups. *(1) The internal peduncular,* the most numerous, the greater number of which come directly from the posterior cerebral, enter the internal portion of the peduncle, but do not pass beyond the substantia nigra.

(2) *Antero-external peduncular arteries,* numerous, which generally terminate in the lower portion of the peduncle, rarely traversing the substantia nigra, to enter the upper levels. They may be found coming as far up as the thalamus.

(3) *The superficial arteries,* distributed to the sulcus.

(4) *Superior peduncular arteries,* few in number.

(5) Arteries which supply the corpora quadrigemina. These are supplied by a very rich plexus, constituting the termination of the *peduncular jumelle* artery, occasionally the superior cerebellar, occasionally the terminal branch of the posterior cerebral each carry a branch of this plexus. All of these arteries are very fine, their rupture is very possible, but experience shows that it is comparatively rare, and so far as the corpora quadrigemina are concerned, hemorrhages within the substance are very unusual.

Two of the series of branches are of special interest. Those which only traverse the peduncle to supply neighboring regions, the so-called optic arteries, internal and external. These are of less importance in the consideration of our particular subject than the second series, made up of the arteries of the third nerve nucleus.

Duret's studies (Archive de Physiologie, 1873) later worked over by d'Astros (Societe de Belgique, June 4, 1892), seem to show that these arteries which supply the third nerve nucleus, belong to an absolutely independent system from the other peduncular arteries, especially the superior peduncular arteries and are the unique supply of the nuclei of the third and fourth nerves.

As to the question of hemorrhage or softening, it may be said that softening in the cerebral peduncle due to emboli are probably rare in the vertebral system. But, arteritis, especially of syphilitic origin, is

*For anomalies see Blackburn, Journal of Comparative Neurology, 1907.

known to involve the basilar with great frequency. It has been seen that the chief nourishing arteries for the peduncle are derived from the posterior cerebral; and that the internal peduncular arteries, the arteries of the oculo motor and the internal and posterior optic are chiefly terminal arteries, not supplied with important anastomoses—obliteration of these causes a much wider syndrome than that which we have under discussion.

It is to a hemorrhage of the artery of the third nerve nucleus that we must look for the interpretation of the lesion in both of our cases. The ophthalmoplegia is complete in each, both external and internal mechanisms being involved. The hemiplegia is largely to be interpreted as secondary and as complicating.

Further interest attaches itself to the record of somnolence, and to coma in all three cases.

In a note made by Dr. Collins on Lindsay, it is recorded that the patient is very sleepy most of the time. Although this observation is made many months after the injury it is of interest to recall that in two observations by Rickards and Leube, somnolence, or an intellectual torpor, or even an incoherent delirium was present in their patients. In our first case, this incoherent delirium was a very marked feature. He had it at the time of making these notes, and his somnolence is also a characteristic feature. In Rickard's case (Brit. Med. Jl., April 4, 1886) the patient was very sleepy, spoke only when questioned, answered only in an incoherent manner, did not care to take any nourishment, saying that he was being poisoned. Leube's patient (Deut. Arch. f. klin. Med., 1887) was in a marked condition of somnolence, did not reply to questions, although neither aphasic, nor anarthric. Both of these patients died, however, very shortly after the apoplexy. My first patient is still sleepy and incoherent, two months after the onset.

d'Astros believes this somnolence to have some relation to the position of the hemorrhage and locates it on the internal aspects of the peduncle extending above the substantia nigra in its upper portions, rather than being a hemorrhage of the internal portions of the peduncle in its lower portions. In this latter region partial involvement of the opposite third nerve is likely, causing a conjugate deviation. Further, when the lesion is more superficial the paralysis of the third nerve is more likely to be partial rather than complete.

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EXOPHTHALMIC GOITER PLUS OTHER SURGICAL LESIONS.

By Vilray P. Blair, M. D., of St. Louis.

I think that it is probably very rare that one can truthfully say that a patient has two distinct diseases at the same time. He may have two or more distinct infections or he may have an infection and an injury, but both are in the same body and the reaction, the abnormal condition of the patient, is the result of both or all of the causes. Even though in attempting to remedy the condition, we may very properly attack one or each of the causes separately, still in considering the disease of the patient we must consider it as a whole.

Exophthalmic goiter, with its uncertainty of origin, course and result, must, when complicated by resultant lesions or lesions of independent origin, present some very nice points for the consideration of the surgeon.

In dealing with our subject in the abstract, to do any justice to it, we will have to consider a number of problems that might present in any or all such cases. One of these would be the possible causative and the possible complicating relations that might exist between the two or more elements of the disease that we are called upon to treat. Then the probable immediate result of further complicating the condition by the shock, trauma or poisoning of an anesthetic or a surgical operation. Finally come the questions of the post-operative influence on the goiter or the hyperthyroidism or the opposite question of the influence of the unremoved goiter on the post-operative condition.

In considering these I shall be very brief and indicate rather than elaborate the ideas that have suggested themselves to me. Limited as is our knowledge of the primary cause exophthalmic goiter, we know that certain influences are apparently at times the determining cause. Among these fright, shock, poisoning of sepsis, autointoxication, and, rarely, pregnancy, may in turn play the title role. Dismissing pregnancy as without the scope of the paper, of the other causes mentioned, any or all of them might accompany or follow a surgical lesion, and therefore, when the predisposing causes are present, this surgical lesion might determine the development of a goiter. On the other hand, while the lesions that are directly secondary to thyroid intoxication, venous or tracheal obstruction, are mostly of the character termed "medical," still certain surgical lesions, such as ulcerations, infections, lithiasis, varicosities, might supervene as the result of the generally depressed condition.

With regard to the influence of exophthalmic goiter upon the immediate result of the operation, it seems to me that three questions

present themselves forcibly. First, as to the propriety of giving a general anesthetic; second, thyroidism as a predisposing factor of shock, and third, the possibility of capillary hæmorrhage. In a way it might be considered that these and all other questions that might arise about operations in the presence of goiter would be answered by the experience gained in operations on the goiters themselves, but this may not be entirely true because in a thyroidectomy we at the same time, with a limited amount of trauma, and with little danger of infection, cut off the source of the hyperthyroidism while in doing other operations in the presence of goiter this will not be the case. At any rate, in operations that are to be done in the presence of goiter that may consume a considerable amount of time or involve the loss of blood, the subject of shock at lease should be very seriously considered on account of the instability of the vasomotor control in this disease.

In considering the possible subsequent influence of an operation upon the goiter, we have but to remember the previously cited points that fright, shock and poisoning can at times apparently produce a goiter or fan a latent one into flame, to see that operations that are accompanied or followed by fright, shock, or sepsis, might in such cases, be followed by most serious thyroidism even when the goiter or its character was unrecognized. On the other hand, it is within range of possibility that relieving some source of acute or chronic irritaton might cure the condition of hyperthyroidism.

In considering the relation of the goiter to the post-operative condition, I think that, aside from an evident acute thyroidism, lethal or not, and aside from the complications that might arise from the poor reparative power of resistance of a patient suffering from chronic thyroidism, one of the most annoying complications that might confront a surgeon after such an operation, would be any of the intestinal disturbances which often accompany this disease, such as vomiting, cramps, diarrhea or distention.

As experience and observation increase, more and more cases of hyperthyroidism are recognized, until the proportion of cases of this disease is so large that it is but natural that a certain percentage must occur in patients that are the subjects of other surgical lesions. I wish to instance the three following cases illustrating some of the points previously mentioned.

Case I. Rather stout unmarried woman, 36 years old, pronounced neurasthenic, who three years previously, on account of a bladder crisis, had had the sphincter vesicæ stretched and it had failed to regain its tone. Several operations had been done to remedy the incontinence, all of which failed. While in the hospital waiting to completely recover from one operation of this kind before undergoing another, she became more nervous than ever and complained of not being able to lie down at night on account of a choking sensation. This was at first put down as hysterical in spite of a distinct, soft enlargement especially of the

right side of the thyroid that had come on at the same time. The pulse varied in rate, but averaged between 90 and 100, though it went below and above these figures, no exophthalmos and no tremor, no eye symptoms. On account of the increasing dyspnea, a partial thyroidectomy was rather unwillingly undertaken under ether narcosis on June 15th, 1906. The right half of the gland, which was fairly large for an exophthalmic goiter, was removed. It did not however seem large enough to mechanically account for the dyspnea. It was only after this right half was dislocated that a second mass was seen protruding out of the thorax which when dislocated proved to be a perfectly spherical goiter 1½ inches in diameter. Examination showed both portions removed to be true exophthalmic goiter. As a result of the operation the dyspnea was perfectly relieved, nervousness partially so, and pulse rate averaged ten beats a minute lower. With a generous lack of encouragement on my part, the patient decided not to have further urethral operation and went back to teaching school. Several months later she wrote to me that dyspnea had returned, but I heard nothing further from her.

Case 2. Young woman, 20 years of age. Has remarkably good family history. Has had the usual diseases of childhood, but with the possible exception of the fact that she could not stand tight neckbands, was always healthy until once after rather violent exercise, she was taken with pain and swelling in legs at twelve years of age, which was called rheumatism. Lasted but a few days. Urine not examined. At sixteen years of age had pneumonia and was left with palpitation, dyspnea, general weakness and pain in right shoulder, all of which lasted about three months when her health was apparently restored, except that the pain in right shoulder returned at intervals and she was very high strung. In May of this year she was, without apparent cause, suddenly taken with vomiting and fainting, and from that time on all of the old symptoms of dyspnea, palpitation, pain in right shoulder and prostration returned, and some time in June she was told by the attending physician that she could not live through the night. In July on account of a lump that had appeared in the abdomen, I first saw her and soon afterwards introduced Dr. Walter Baumgarten into the case. Physical examination: Poorly nourished woman, undersized, very anemic, rather intense and chafing under restraint, and subject to varying moods, heart very slightly enlarged, very irregular in action. A presystolic thrill felt over pericardium and pulse about 140 to 160, an uncertain crepitus in posterior part of one lung. In the abdomen, with its upper palpable border 1½ inches below lower end of sternum and being about 2 or 3 inches broad, was a hard mass extending across the epigastrium to be lost in the mass of the right lobe of the liver and to be rounded off and lost to the right of the left mammillary line. It was firm and resistant to pressure and flat on percussion, with a resonance above and below. It was most evident in the epigastrium and was referred to by the patient as a "swelling." It did not move with respiration, but had a free lateral

excursion when moved. Below this and deeply situated in the abdomen, was a but slightly resisting mass which seemed to be covered by intestines. On deep palpation it could be felt to lie in the right lumbar and umbilical regions and to extend down to the inguinal region. Besides a slight appearance of general puffiness there was no edema and patient's skin was fine, soft and she perspired easily. There was a slight prominence of the eyes and fine tremor of the lids, but no other special ocular signs were found. There was a fine inconstant muscular tremor of fingers and a soft visible and palpable, pulsating tumor of the thyroid which the patient had never noticed and which was largest on right side. She had an atrophic rhinitis that caused nose bleed at intervals. On limited exercise, and digitalis, all symptoms improved for a while and then returned suddenly and patient's condition became much worse in spite of numerous remedies, including antithyreoidine. She was removed to St. Luke's Hospital in a desperate condition of thyreoidism, but rest in bed, digitalis, and antithyreoidine and tincture of belladonna, caused such improvement that the patient returned home thinking herself well, and the abdonimal lumps had almost disappeared. In November all symptoms reappeared and her condition was worse than before. After a preparatory course of treatment of digitalis, and thyreoidectine, the superior and inferior thyroid arteries were tied on right side after which condition was better and cyanosis disappeared. Three weeks later the right half of the thyroid was removed, both operations being done with local anesthesia. Thyroid proved to be true exophthalmic goiter. Immediately following second operation there was a purulent bronchitis from which she made a very slow recovery. Thyroid symptoms improved and pulse became regular and now averages about 90, but general condition very much better than before operation. No attempt has been made to investigate abdominal condition by operation. I think further thyroidectomy indicated. The laboratory examinations in the case have all been negative.

Case 3. Married woman, 40 years of age, with history of recurrent, septic attacks with certain of her numerous confinements. Otherwise history rather of fairly good health. When 16 years of age she had a visible goiter that came on suddenly following a shock which receded in a week without other symptoms. At the age of 36 years, while pregnant, thyroid again became suddenly enlarged. No other symptoms at the time. Since having some teeth extracted three years ago, she had difficulty in opening mouth. At time of operation mouth opened but half inch with no palpable obstruction evident. Ten months ago first noticed choking on lying down, and nervousness, both of which symptoms have increased. She consulted Dr. Huelsmann and he found a moderate-sized goiter. Pulse 120 and nervousness, loss of flesh, free perspiration, flushing and other symptoms of hyperthyroidism. Patient improved on thyreoidectine, but later, after an appendiceal attack, condition was aggravated. Dr. Huelsmann proposed active surgical intervention, which was accepted. She was a placid-looking person and rather thin. She

said she felt nervous and could not lie down without opening her mouth on account of choking. She could open her mouth but slightly and the effort caused pain in the region of the temperomandibular joint. Examination of jaws revealed no cause for the limitation. There was tenderness in lower part of abdomen and vaginal examination showed a fixed uterus, retroverted and bound to the left by a mass of adhesions. From tenderness over appendiceal point and from history and present symptoms the diagnosis of appendicitis and pelvic adhesion was added to that of goiter. The mouth trouble was still unaccounted for. It was decided that both conditions needed treatment and that the thyroid should receive the first attention, not that the symptoms were so imperative, but it was considered unwise to attempt other surgical interference in the presence of the thyroidian. September 7th, pulse 119 while in bed with head and shoulders well propped up on account of dyspnea. Under local anesthesia of one-half per cent. soluble novocaine and 1 to 160,000 adrenalin chloride, half of goiter excised. During operation pulse rate was from 150 to 180, but it was well borne and patient's general condition immediately improved. Besides the relief of the dyspnea, the next day patient said that she felt no nervousness and could lie with hands perfectly still. Recovery uninterrupted. Examination showed the removed portion to be true exophthalmic goiter. September 24th, ether was cautiously administered and though pulse at first went to 160, by the time she was well under the anesthetic it was 100 and of good character. The whole operation was much complicated by bleeding. A long appendix, adherent to the right tube and ovary, was removed. The pelvic viscera were matted down and tightly adherent to the rectum. Further operative procedure would have been tedious and time-consuming, and as the symptoms of recent years had been such as to suggest the appendix as the offender, and as the gall bladder was healthy, the abdomen was then closed. The wisdom of this has been brought out by the fact that in the nine months which have elapsed since, there have been no further pelvic symptoms. The operation was well borne and a few months afterwards she was doing the cooking and housework for a family of seven and felt perfectly well.

A peculiar thing is that a week after the first operation the patient said she could open her mouth better and now can open it 1¼ inches and can protrude the tongue. Difficulty in opening the mouth is given as one of the symptoms of Graves' disease, but might ordinarily be placed in the class that Thomson refers to as fancy symptoms. I must confess that in this case it was so pronounced that I never thought of its being but a symptom of thyroidism.

In dealing with such cases we should be guided by our surgical sense and by the rules laid down by men of great experience for the preparation of patients for goiter operations, and antithyreoidine, thyreoidectine and the antithyroid serum, and other efforts along the same line, should receive consideration.

TRAUMATIC VENOUS THROMBOSIS.

By W. P. Kendall, Major and Surgeon, U. S. A.

Because of the comparative infrequency with which cases that form the subject of this paper are met, and because of the seriousness of the condition, when it arises, together with the uncertainty attending the diagnosis, I have thought that a review of the subject with the report of a case might interest.

While cases are from time to time reported, the literature upon the subject is not voluminous, and some features are still unsettled; if anything can be added which may help by throwing even a little side light upon these, it should be acceptable. The one point of this paper is, the suggestion of a new factor as a possible immediate cause in the production of mesenteric venous thrombosis, viz., traumatism.

So far as I am able to learn, this has not before been recognized, or, at least, accepted as a cause. No cases are reported.

Those who have access to the Journal of the American Medical Association will recall an article upon the subject, which appeared in the June and July numbers during the year 1904; practically all that is known was there reviewed and any discussion must largely be upon points there brought out. I shall, therefore, content myself with a review of the salient features, and ask your special attention to the report of a case in which there seems to have been no other cause than traumatism.

For the sake of comparison, and, in order to refresh our memories, I shall run over, as concisely as possible, the entire subject; but in doing this many details must, of necessity, be omitted; for these I refer you to the article already mentioned, a careful perusal of which will, I am sure, be of interest.

Pathology. The results of venous thrombosis and arterial embolism are, when at all marked, so similar they will be considered together. That congestion should occur in the one and anæmia in the other is natural to expect; this, however, is not always the case, and, whatever the cause, the two are so apt to merge, it is difficult to consider them separately; speaking generally, this will not be attempted.

The occlusion of either an artery, or a vein, is attended with more or less shock, greater in the case of embolism. If the artery has been closed the immediate effect is a condition of anæmia; this may continue, or may be followed by congestion. The anæmia can hardly occur with a thrombus; on the contrary, the immediate effect, coming on slowly, must be that of congestion. Following the anæmia of embolism anastomosis may become complete and the parts may be restored to a normal condition (these cases, however, being infre-

quent), or the condition may progress to the extreme result,—gangrene of the part involved. As the anastomosis is better in the large than in the small intestine, the effect in the former is less liable to be extreme. With the interference of the circulation and the subsequent congestion, fluids of the blood are poured out; these, or pure blood it may be, are found in the tissues, peritoneal sac, and intestinal tract. The result is a discoloration and thickening of the tissues. The discoloration varies from the pink of simple congestion to that of even greenish black of gangrene. The thickening ranges from a barely recognizable condition to one in which a palpable tumor is produced. Usually considerable fluid, often blood stained, is found in the peritoneal sac; this may or may not be accompanied with fibrin, matting the coils of the intestines together, depending upon the duration of the disease; the intestinal tract may contain merely the fluids of the blood, or hemorrhage may have taken place, the contents being, when old, more or less of a tarry nature; or, if recent, of pure blood. The area involved depends of course upon the size of the vessel or vessels affected. While it may be of great extent, more frequently it is limited and the diseased tissue may not be more than a few inches in length. Generally the circumference of the gut is involved. The tumor has, as a rule, a pretty well defined, though often irregular, line of demarkation; the engorged vessels are distinctly visible and feel like cords under the finger. Later, as an attempt at reparation progresses, all signs are increased, the discoloration deepens, the thickening increases, and the area of congestion markedly widens, until the effects are seen at a distance of several feet from the site of injury; the mesenteric glands become swollen while ulceration of the mucous membrane of the intestine is a common occurrence; gas accumulates, and the gut is distended. This, however, is not marked in the early stages, though it is decidedly so in the later ones.

In all but the very mild cases, peritonitis sooner or later develops accompanied by the usual signs and symptoms.

Etiology. The causes leading up to either an embolus or a thrombus are numerous, and include all those diseases in which changes have taken place in the walls of heart or vessels, such as syphilis, cirrhosis, rheumatism, etc.; diseases in which bacteria have found access to the vessels; phlebitis, appendicitis, enteritis, typhoid fever, and sepsis from any cause; following these, the more common causes must be considered; those where a secondary condition has followed upon a mechanical obstruction; thrombosis of the veins may be produced in this manner by any tumor pressing upon the vessels, as cancer, or cirrhosis of the liver. It sometimes follows upon an arterial embolism.

Lorenz reports a case where it had followed an obstruction of the arteries due to a thickening of the intima. Koester believes that

slowing of the circulation is not, in itself, sufficient to cause thrombus. Neutra, on the hand, holds that this is sufficient; the latest writers accept Neutra's opinion as being supported by the weight of evidence; it furnishes the only plausible theory as to the cause in the case under discussion. Though it may possibly have existed, no disease of the vessels or organs was discovered, while the history records an injury sufficient to produce, temporarily at least, a paralysis of the mesenteric nervous system without other discoverable injury.

Course. Regarding the course the disease takes, writers have undertaken to divide the group into acute and chronic cases. An analysis of those where a reliable diagnosis has been made shows this to be unsatisfactory; beyond the fact that about 50 per cent terminate fatally within the first three days while the other 50 per cent are distributed over some two months, no such division seems to be possible. Of the 50 per cent which come to an early conclusion, there is about an equal division between venous thrombosis and arterial embolism.

Of the so-called chronic cases, i. e., those covering a period of several weeks, those where the veins are primarily affected, are most apt to show a steady progression; while those where the artery is involved, except the extreme cases, often show an interruption or intermission. Like those running a more acute course, both classes are about equally represented; more than this imperfect and unsatisfactory division little has been accomplished.

In 95 per cent of all cases, the course progresses steadily and rapidly to a fatal termination.

Symptoms. In the consideration of the symptoms, unfortunately, there is nothing characteristic, while all point to a serious abdominal lesion. Practically all are found with other conditions, hence lose much of their value in attempting to make a differential diagnosis; this will be apparent as the more important ones are considered individually. What has been said of the symptoms applies equally to the signs; the only question is, as to the exact nature of an existing serious abdominal lesion.

In a typical, well-marked case, shock, with the usual indications, is a pronounced feature; the pulse is frequent, and feeble; the respiration shallow, and increased in rapidity; palor of the skin and an anxious expression are noticeable. These all vary in degree, depending upon the extent of the injury. They are usually accompanied with pain, often severe, fairly well localized. Nausea with vomiting is a frequent symptom; the vomit may be the normal contents of the stomach and intestines, or it may contain blood. Depending upon whether paralysis of the mesenteric nerve supply exists or not, constipation may be a symptom; and if not, a bloody diarrhœa may occur. By some this last is considered an almost necessary

factor; it occurs in between 40 and 50 per cent of the cases. If paralysis exists, the gases are retained, with resulting tympanites. This, however, does not occur early, except in the more serious cases; on the contrary, it arises later in nearly all. At first the temperature is liable to be subnormal; as the disease progresses, and inflammatory reaction sets in, it rises, and may reach 104° or 105°.

Physical Signs. The physical signs are as little characteristic as are the symptoms; there is nothing which, considered alone, can be relied upon; the attempt at protection, indicated by the rigidity of the abdominal muscles, is seen in this as in other acute lesions of the abdominal cavity. Both a tumor and fluid may be palpable, but these also are found in other diseases. That a serious abdominal condition has arisen is recognized, but a differential diagnosis is hard to make; fortunately this is not necessary. An exploratory incision is indicated, and the sooner it is made the better for the patient.

Treatment. Regarding treatment, slight opportunity for discussion presents; with 95 per cent against it, little reliance can be placed in the efforts of nature. The few recorded instances where spontaneous recovery has occurred only emphasize the necessity for immediate interference. When the pathologic condition is considered, any temporizing seems as folly, and the suggestion of one writer to employ deep massage, is to be mentioned only to be condemned. It is not understood upon what line of reasoning such treatment can be based; the less a vascular clot is disturbed, the less damage it is liable to do. Localized in the abdomen, there is an opportunity to reach it; in the brain, there might not be. To us, nothing but operative procedures seem worthy of consideration, and of these, two radically different methods are suggested; choice between them will depend upon the extent of the lesion and the skill of the operator. The first consists in withdrawing the affected gut well out of the incision and, having excised in the healthy tissue, stitching the open mouths to the edges of the wound, meanwhile protecting thoroughly the abdominal cavity by walling off. The advantages claimed for this method, which is recommended by the reviewers already so freely quoted, are that it is more easily and quickly done, consequently taxes the patient less; that it allows for the escape of retained gases at the same time permitting of a free inspection of the condition and its progress. The second is exsection of the entire affected area; that operators will be influenced in their choice by the conditions found, together with those which surround them, and their own dexterity, must be accepted. The first seems better adapted to those serious cases where, because of the patient's condition, the more radical operation is contraindicated. The second, to those where the involvement is not so great as to destroy hope. Elliott removed forty-eight inches, with a recovery. It seems to be the rational procedure. In either case,

the incision must be in healthy tissue, consequently the one factor in deciding the choice of operation should be the ability of the patient to support the longer one; other things being equal, it is the most surgical.

Having reviewed concisely, with the omission of many minor details, the history and course usually pursued in cases of both venous thrombosis and arterial embolism, permit me to recite that of my own. Because of its uniqueness regarding etiology, and because it is recognized that a positive diagnosis has not been demonstrated, I shall go more carefully into details than would otherwise be necessary. When the history and the macroscopical condition are considered together, the claim of having met with an undescribed factor in the causation of the disease, seems to be well founded, notwithstanding the absence of a demonstration.

Paul Blasberg, male, age 21; residence, New Jersey; occupation, soldier. Intelligent, well developed, apparently healthy man; admitted to hospital May 21st, 1905, at 4:45 p. m. Family history, negative. Previous history: No history of disease of any kind can be found. Evidences of either alcoholic or venereal history are negative. Record, good. Has been under observation for over two years; denies ever having had diarrhœa. Present history: Up to Friday morning, May 19th, two days before admission, he had been perfectly well. Friday morning he rode a bucking horse and was pretty badly shaken up, but not thrown. During the rest of the day, though suffering no marked pain, he had decided discomfort; that night, however, some twelve hours later, he experienced pain, which gradually grew worse, in the right umbilical region. Being of a plucky disposition and thinking that it would pass away with rest, notwithstanding the fact that his pain was gradually increasing, he did not go on sick report until 4:45 p. m., Sunday, May 21st, some sixty hours after the receipt of injury; at that time he complained of constipation and pain in the abdomen; the bowels had not moved since the receipt of injury; his temperature was 103°, pulse 88, respiration 27, and his face wore an anxious expression; there had been no vomiting. A physical examination upon the table disclosed nothing further except rigidity of the right rectus muscle, with decided tenderness over a point about one inch inside of McBurney's; a little too far in for an ordinary appendicitis. Because of the tenderness the examination was unsatisfactory. Notwithstanding the history, it seemed to be an acute appendicitis and directions were given to have him prepared for an operation in the morning, and 15 c. c. of Epsom salts, every hour until bowels moved, were prescribed.

May 22nd. The patient passed a fairly comfortable night; the first and second doses of salts were retained, the third was rejected. Bowels moved five times during the night; stools watery and con-

tained no blood. He thinks that he feels better, the tenderness seems to be less, no tympanites exists, no sedative was exhibited; there is a suspicion of a tumor, but it is not positively made out; temperature 102, pulse 92. As he was not anxious to have an operation, it was thought safe to postpone it. Leucocytosis, 6400; albumen, negative.

May 22nd, 6:00 p. m. Temperature rose to 104 1-5.

May 23rd, 9:00 a. m. Temperature 102 2-5, pulse 92. Patient seems to be in about the same condition as at this time yesterday; neither signs nor symptoms have apparently increased; bowels have moved four times during the past twenty-four hours; stools liquid, abdomen is comparatively flat. Both pain and tenderness continue, and an ill-defined tumor is detectable. Leucocytosis, 9800; albumen, a trace; no vomiting.

May 23rd, 6:00 p. m. Temperature is again 104 1-5. An operation is considered imperative, and he is ordered to be gotten ready for the next morning.

May 24th. Temperature 103 2-5. No doubt of the presence of a tumor exists; it is just to the inside of McBurney's point and extends inward. Abdomen slightly distended. Pulse 100, respiration 28, expression anxious, heart and lungs normal.

Under a general anæsthetic an incision was made through the external border of the right rectus abdominis. Upon opening the peritoneal sac, serum slightly blood-stained flowed out. No gas appeared. The coils of the intestine were not matted together, neither were there any flocculi seen. The appendix was readily located and found to be in a slightly congested and swollen condition; notwithstanding the fact that it was considered insufficient to account for the severity of the symptoms, being abnormal, it was amputated; further examination, after this had been done, disclosed as follows: The intestines well filled with gas, the vessels of the caput coli slightly congested; the remainder of the colon was normal. Beginning at the ileo-cecal valve, and extending upward for several feet, the ileum was in a state of marked congestion; this was greatest at the valve and diminished gradually as the distance increased; for several inches (6 or 7) the coats of the ileum were thickened, forming a tumor which resembled an intussusception. At the time this was not recognized as being well defined, the shading into the upper portion of the gut being gradual; the vessels were engorged; afterward a bystander remarked that they had reminded him of varicose veins; the mesenteric glands were very considerably swollen. The finger, passed from below, showed a patulous condition of the valve, the lips of which, however, were elongated, due to the congested condition of the mucous membrane. Because of this fact the thought of an intussusception through the valve seemed to be supported. As the area apparently involved was so great and the operation already

prolonged, exsection was not considered to be advisable. The abdomen was consequently reluctantly closed.

Instead of improving, the patient's condition grew worse, consequently, as a *dernier ressort,* the abdomen was again opened the next morning through the original incision, and the tumor together with the caput coli, about 18 inches in length all told, removed; the abdomen was then closed. Death followed in about twelve hours.

Examination of the exsected portion showed a tumor of the lower end of the ileum; this was formed by all the coats of the gut, was cylindrical in shape, well defined, of mahogany color, and about 7 inches in length. When opened the walls were about ¼ of an inch in thickness; the mucous coat was studded with small confluent ulcers over an area 3 or 4 inches in length by about 2½ inches in width. With the exception of one small ulcer, some 8 inches higher, no other evidences of disease appeared; the ulcers were superficial and there were no signs of perforation; the contents of the intestines were fecal, without signs of blood; no signs of hemorrhagic extravasation were found. At the necropsy nothing more was developed. No signs of disease were found in any of the organs or vessels.

The report of the pathologist throws no positive light upon the subject of causation. No mention is made of an examination of the vessels, which is to be regretted. It seems certain that this step would have aided us, though the history and macroscopical appearances are, in themselves, convincing. Examination of the heart and other organs disclosed nothing abnormal.

Regarding the course which the disease had taken, the following deductions were drawn: The pulse rate, which was comparatively slow at the time of admission, was an index to what then existed sixty hours after the receipt of injury; it had probably been more rapid during the early hours of shock which had now modified.

The symptoms of peritonitis did not arise until some five days after injury and after development of the disease; it was, therefore, secondary to this rather than the immediate result of the injury.

No acute pains, such as are to be expected after perforation, were complained of.

The absence of the bloody stools is unimportant; they occur in only 50 per cent of the cases.

The fact that the bowels answered to the exhibition of laxatives is explained by believing that the paralysis of the mesenteric nervous system which, emphasized at the point of greatest injury, had been productive of the clot, was gradually wearing off, and that a general peritonitis had not as yet developed.

In advancing a claim for a new, or an unusual, condition, no link in the chain of evidence should be missing; realizing that this weakness existed, I had some hesitation in presenting this case, and it was only when I called to mind that the entire fabric of our knowl-

edge is built upon the observations of the many rather than of the few that I concluded that it should be offered for your consideration. In the opinion of myself, and some of my friends with whom the case has been discussed (notwithstanding the absence of positive proof), no doubt exists as to the diagnosis; granting this there remains then, for discussion, the cause only.

It is fair to any question, that it be considered from all its aspects, and that the finding be with the weight of evidence; though the cases are exceedingly rare, one of the best observers, Neutra (and his opinion is accepted by the latest reviewers), holds that a slowing of the circulation is sufficient to cause venous thrombosis; this slowing is always caused by a paralysis of the vasomotor nerve supply. That there was more or less paralysis of the mesenteric nerve supply in the case under consideration, is proven by the obstipation which existed in a previously regular individual, for some sixty hours immediately following the receipt of injury. No lesion of vessels or other organs was discovered. Under the circumstances it seems reasonable to believe that the condition found stood in direct relation to the injury received, and that traumatism alone was responsible for a mesenteric venous thrombosis.

SOME VITAL POINTS IN TUBERCULOSIS.

By Louis M. Warfield, M. D., of St. Louis.

The subject of the early diagnosis of tuberculosis of the lungs is trite and yet not old. The paramount importance of this subject to the afflicted individual makes it an ever new one, and the difficulties encountered in definitely stating that a person has the disease should make us, as guardians of the public health, constantly strive to perfect ourselves in diagnosis. It is not intended here to enumerate the points that are of value in making an early diagnosis. It is more my desire to call attention to a few features that seem worthy of careful consideration by us.

It is generally admitted that the diagnosis in the very early stages is most difficult and at times quite impossible even after frequent and most careful examinations, temperature charts, tuberculin subcutaneously and other methods that help us to arrive at a conclusion, have been exhausted. A point to be remembered is that when we are able to state definitely that the disease is present, the patient, however well he may look or feel, is an ill person and should be treated accordingly.

One cannot learn diagnosis from books or separate medical articles. As Dr. Lyman[1] has recently said, the medical schools are the places where this should be taught. Clinics are held on advanced cases. The outlook is always grave. The lesions are evident and the student leaves college with a false conception of lung tuberculosis. Suppose a person states that he thinks he has consumption, can anyone on hastily examining the chest say positively that he has not? Suppose there is loss of weight, tired feelings, very slight rise of temperature to 99.2° or 99.4° every afternoon, there is no cough, no sputum; or if there is slight cough and a little sputum, no bacilli can be found, can anyone state in the absence of definite lung signs that the person has not tuberculosis? It is not just to the patient to tell him that he has no trouble. Three or four months later he comes in with a history of a recent hemorrhage and there are rales and other signs at one apex. Then bacilli may be found, but this is a second stage case and under the best conditions only about one half of such cases recover.

It is of the utmost importance to bear in mind that the finding of bacilli is *not* necessary for a final diagnosis. Unless the process in the lung has broken down and communicates with a bronchiole there cannot be bacilli in the sputum. Many a man has lost his life because of a report from a bacteriologist that no bacilli were found in the sputum. While the laboratory has proven of immense value to physicians, it has been at times a curse. This is not the fault of the laboratory but of physicians who fail to interpret correctly the laboratory findings. It may be stated as a law that never does the negative report preclude the possibility that

[1]Journal Amer. Med. Ass'n, Feb. 29, 1908.

the disease is present. This can be said of malaria, typhoid, diphtheria, meningitis, etc., as well as of tuberculosis. Tubercle bacilli in the sputum represent the beginning of ulceration and strictly belong to the second stage of the disease.

How are we to make an early diagnosis? No one can tell us. We must be taught on the living patient by those who realize to the full the importance of early diagnosis. Without going at all into differential diagnosis there are a few points that are worth noting.

1. An open attitude of mind but yet a critical attitude must be the first essential. Should there be any prejudice it is best to regard all suspicious cases (in our own minds, of course) as tuberculosis until we can prove the contrary.

2. A most important point is a careful history. The apparently trivial things that the patient is apt to slur over may give us much valuable information. Scarcely anything is too unimportant to note when we are diagnosing early tuberculosis.

3. After the history comes the examination of the patient. This does not consist of looking at the tongue, taking the pulse and temperature and putting the ear to the chest or a phonendoscope over the clothes. *The chest must be bared.* That is as close as we can get to the lungs.

4. The examination is no easy matter. A good light falling on the bare chest is essential. Time and patience are two important requisites. And with these there must be the sight trained to detect the smallest visible differences; the touch to feel them; the hearing to differentiate between truly abnormal and only physiological sounds in corresponding parts of the lungs. This skill does not come at once. To some it may never come, to others it comes gradually. None may acquire it in a medical school. The principles alone can be learned.

5. After careful examination there must be further careful examinations of the patient and repeated examinations of the sputum. All this is time-consuming but there is a human life at stake and the person must know so that he may order his life according to rules made to regain his health. Temperature records and pulse rates, before and after exertion, blood examinations, the tuberculin tests, etc., also should be done. These cannot be done in a day, possibly not in a month. The fact is that patients should be taught to be patient. They should be told frankly that the matter is of sufficient importance to be gone into most thoroughly and they should be frankly told that they have tuberculosis, if that is the diagnosis, and stress be laid on the fact that they are ill and to get well brooks no trifling.

There are cases, true of the second or third degree, in which chills, fever and sweats occupy the centre of the clinical picture. The paroxysms may even simulate malaria so closely as to come every second day. In these times when a microscope should be a part of every physician's outfit, such a gross error as the confusion of the irregular fever of tuberculosis with that of malaria should never be made. Even without the

microscope to show us whether or not the malarial organism is present in the blood, careful physical examination and a study of the temperature for several days, should give us an accurate diagnosis. Let us remember that the diagnosis, malarial fever, is a very definite diagnosis based on the actual seeing of the causative agent. Let us not forget that the specimen of sputum sent to be examined may show no tubercle bacilli at that particular time. The next day's sputum may be filled with them. Were it not for the fact that such errors are made daily, there would be no need to call attention to this point. Most textbooks are much misleading in stating that the onset of tuberculosis may be with symptoms simulating malaria. The onset took place long before, weeks or months even. No case with such symptoms could by any stretch of definition be put under the class of early cases.

A patient comes to one of us and states that for a month he has been rapidly losing weight, has had cough and fever and night sweats. Now, nothing is more certain than that the disease did not begin one month ago. Frequently such a history is obtained. About two years ago he had a little cough, not much, however, and one day while in a paroxysm of cough brought on by laughing, etc., or during some muscular strain, he had a salty taste and spit up blood. He went to see a doctor who gave him some medicine that stopped the blood and told him it probably came from the stomach. Patient went away to the country or even went back to his work apparently well.

Such a history, one of many actual cases, shows us the value of history taking. It shows us that the disease had been present over two years. It shows us the *significance of blood spitting*. There are men (Anders, etc.) who maintain that hemoptysis may be produced by diapedesis of corpuscles from a congested area as well as from a rupture of a vessel. While blood-streaked sputum may be due to the diapedesis of corpuscles, it is scarcely conceivable that actual hemorrhage should come from such a source. However that may be there is this bare fact staring us in the face; blood spitting most often means tuberculosis of the lung. There may never be hemoptysis in protracted cases that eventually succumb. There may be the so-called hemorrhagic cases where hemoptysis is frequent. Some persons apparently feel better after a hemoptysis and some physicians have stated it as their belief that cases having frequent hemorrhages do better than those that never spit blood. That I do not believe. The important point is this. *Blood spitting is always an exceedingly serious matter irrespective of its source.* If from the stomach surely this is no light matter. There may be ulcer, cancer, oesophageal varices due to cirrhosis or to some other interference with the portal circulation. Small bleedings may come from the nose or teeth. These should be examined. However, the cough followed by the salty taste is almost pathognomonic of hemoptysis particularly if this occurs in a person apparently previously healthy. This is no little affair. This is tuberculosis and students should be taught this until they realize it to the fullest extent.

We still hear it said that if a man has consumption he can never get well. If we make a distinction between tuberculosis and consumption, meaning by the former a slight lesion and by the latter advanced tuberculosis, then we may admit that this is true. However, if we make such a distinction do not let us fall into the old error of the dual nature of tuberculosis. Tuberculosis of the lungs and consumption being one and the same thing we may agree to call only advanced tuberculosis, consumption. This distinction is important and it is well to have it clearly in mind. Then admitting this, let us state that tuberculosis is curable in from 63-85 per cent. Consumption is fatal in 70-90 per cent., the most that we can hope for is an arrest of the process. And moreover this fact should be branded into the brain of every student, every doctor, every layman: The earlier the disease is recognized the greater the surety of a complete recovery. Again, let us state that the presence of tubercle bacilli is not necessary for a diagnosis.

Some deny that tuberculosis is ever cured. To those it can only be said that failure to make an early diagnosis is responsible for that opinion. When we see the numbers of persons dead of various diseases who show unmistakable evidences of a healed tuberculous process, can we deny the evidence of our senses? Many such persons never showed symptoms sufficient to reveal the presence of tuberculosis. It is my own belief that a mild infection in some persons with good resisting powers is revealed by a period of several weeks of bad health and general malaise. A vacation or a little better care of the body gradually brings such persons back to health. No one can absolutely deny the possibility that such a condition may be tuberculosis. In fact the post mortem statistics showing the frequency of healed lesions would tend to support such a belief. The fact is that by the time we can diagnose what we call the earliest lesions, a really considerable part of the lung must have become involved in the process.

Having made a diagnosis, the patient wants to go to another climate. He knows of people who went to Texas or Colorado or New Mexico, etc., etc., and lived in the open air. They were cured. We admit that. But why not use your own climate to the best advantage? In general, a change of scene and climate (personally I believe scene more than climate) is good for the strong as well as for the sick. To ship the advanced consumptive off to some far away clime is not good advice. To say the least, it is cruelty. If there is one thing more than any other that aids in the cure of the tuberculous, it is cheerfulness. Consider the loneliness of the invalid among the bands of harpies at the usual health resorts. If a man can afford to transport himself and family or, if without a family, he can afford to have the best of everything, well and good. Let him hunt the will-o'-the-wisp of health from one place to another. He will find that however near he may get to it, it is always at the next place, until worn out he comes home to die. Possibly his home coming may be brighter, and surrounded by friends and careful attention,

he awakes to the realization that the will-o'-the-wisp has at last been caught.

Personally I believe that it is only occasionally that it is good advice to urge one to go away. In general, people can be cured in their own homes and the man who conscientiously treats his cases at home obtains better results than he who rushes his patients to some special climate. Let me not be misunderstood. Climate is an excellent adjuvant, but climate alone has never accomplished any cure of tuberculosis. Let the tuberculous do in his own climate what he does in some health resort and the results will be just as good if not better.

There is no more fatal adivce given than that of telling patients to work and exercise. It is rest that is needed. When there is fever, absolute rest in bed must be insisted upon. It seems an insult to the intelligence of the readers of this JOURNAL to urge what seem to be self-evident points, but the importance of these points is the excuse. When we see early cases developing into advanced cases because they were told to walk the disease off; advanced cases with high fever rapidly becoming worse because of the advice to exercise, we feel it a duty to urge the importance of rest. The man who fights his typhoid fever generally has a hard time and not infrequently the disease wins. The man who in the same manner fights his tuberculosis is almost always the loser. Exercise has its distinct place in treatment but it is a therapeutic measure that should be regularly supervised by the physician who understands its limitations.

Attention to every detail of the patient's life increases his chances of cure. The doctor who is too busy to supervise personally his cases, certainly is not giving his patients a fair chance to get well. No one drug is a specific, no one method will apply to all cases. Even specific therapy with the various forms of tuberculin is suitable only to selected cases. To individualize means success in treatment if success is to be had.

It is borne into me daily that the medical profession is not fully alive to the great responsibility that must inevitably be shouldered by us. As guardians of the health of human beings, we seem singularly derelict in our duty towards our fellows. Can anyone deny that the doctor who allows an early case to become one with cavity formation before he really examines the patient, is not responsible for the death of that person even as he is responsible who through carelessness shoots a man? No court of justice is here to sit in judgment on criminal carelessness in regard to disease. Ignorance might be excusable, there should be no excuse for carelessness. We are guilty of a gross breach of trust if we do not find out by all means in our power, at the earliest possible moment, the exact nature of our patients' illnesses. No one is always right. No one expects any of us to be always right, but we are expected to be conscientious and to give the best that is in us to those who entrust their lives to our care.

After all, it is better to err on the wrong side, that is, it is better to treat a suspected case of tubercluosis as one of tuberculosis than to pass it over flippantly because absolutely definite signs are not present.

If every physician examined carefully every case of cough or of rapid loss of weight, there would be fewer advanced cases. There would thus be a saving of life; for under proper care, one-half of the second stage cases may get well, but only one-tenth to one-eighth of the advanced ones. Moreover, the recognition of the disease at even this comparatively late stage would enable the afflicted to take the precautions against infecting others and undoubtedly many a life would thereby be saved.

Metropolitan Building.

SIGMOIDITIS.

By W. H. Stauffer, M. D., of St. Louis.

In the study of life as manifested in its lowest and highest forms, two factors always claim our attention, namely, assimilation and elimination. As we advance from the cell to the alimentary canal we find various changes according to the needs of the organism. In man we find, in health, the most perfected mechanism extending from the lips to theanus. It is not my purpose to burden you tonight with the study of all the points of interest we find along the banks of this important canal, but to ask you to rest and refresh yourseleves in what has been, until recently, an undiscovered country.

The sigmoid is placed between the process of assimilation and elimination, and its importance will be appreciated when you consider the value of a sewerage system scientifically constructed; for as the health of a city depends largely upon the proper disposal of its offal, so every individual should look well to his outlet. From its anatomical construction and relation to adjacent organs, it is easily seen that disease of the flexure is well worth our consideration. It is generally located in the left iliac fossa. Its fold of peritoneum is attached in the fossa, and is long enough to allow the gut to hang over the brim into the pelvic cavity. At the lower end of the flexure the fold is quite short, and holds the part up close to the sacro-iliac symphysis. It can be seen, then, that the sigmoid flexure hangs down in the pelvis like a bag when it is not distended.

I am fully convinced by observation in examining a large number of persons, and taking into account the anatomical construction of the rectum, that it was never intended as a recepticle of feces between the acts of defecation. If the calls of nature are not heeded, the fecal mass is lifted back into the sigmoid flexure, and there remains until the next effort is made. During this time, of course, the watery constituents of the mass are reabsorbed, and the remainder is left in a dry, hardened condition. What could be the source of greater mechanical irritation than this? Is it any wonder then, that a congestion, an inflammation, and lastly, an ulceration, of the gut could occur? This furnishes the key that to my mind explains the varied symtomatology and pathology of the sigmoid. Dilation of the flexure is frequently found in old people of sedentary habits who eat too much and do not heed the calls of nature.

After a prolonged and fruitless effort on the part of nature, the circular fibres at the inferior end of the sigmoid become hypertrophied and the lumen becomes smaller and we find, in such cases, that the flexure is never empty. The symptoms caused by a distended sigmoid

are of a local and constitutional nature. The pressure on the reproductive organs of the female cause pelvic cellulitis and the usual pain in the pelvis and back, and pressure on the uterus, with a long train of symptoms, is sure to follow. The constitutional symptoms are largely caused by autoinfection. Some of our neurologists tell us that the condition is a neurosis, and that rest with bromides is all that is needed. Gynecologists have removed ovaries and tubes when they should have removed feces. Floating kidneys have been anchored or removed when the overburdened sigmoid was ready to make its contribution for the benefit of vegetation. The evil effects of retained feces are important and far reaching, and affect every organ and tissue of the body.

Fermentation in the alimentary canal is largely kept down by the action of the acid gastric juice. The acidity may be temporarily neutralized in the duodenum, but an acid reaction is found in the contents of the bowel when they reach the ileocecal valve, and as there is no fresh supply of acid below the stomach it seems probable that the reaction is acid until the colon is reached, or at least the cecum. During its progress along the small bowel, active absorption is going on. This seems to be completed when the cecum is reached, and we may assume that any absorption from that gut is of questionable utility. It is certain that the toxicity of the now fecal mass increases every hour that it is retained in the large bowel, whether this be long or not. The bacteria multiply to such an extent that billions of them are excreted with the feces daily. If the liquid parts of the mass are absorbed, the chemical action is slower, but the toxins develop greater virulence. The loss of elasticity of the bowel coats, due to advancing years, sedentary life and the use of foods containing no irritant residue, conduce to stasis of the mass. The pressure of additional matter causes perforation of this mass, and daily evacuations may continue with the retention of feces for many months. I have been assured by patients that seeds and other recognizable ingredients of such masses had positively not been swallowed within seven months of the time they were evacuated.

What are we to think of the intestinal mucosa thus lying in contact for such extended periods with the most dangerous toxic substance known, its cells constantly traversed by the poisonous products of bacterial growth, and yet retaining vitality and function?

The patient develops the following condition: The face is pallid, the eyes surrounded with heavy dark rings, pimply; itching generally, the eyes heavy, tongue coated, the breath bad, appetite mechanical, a variety of digestive ailments present, general mental and physical depression, the bowels usually kept in some order by daily laxatives, the urine heavy and offensive, morning headaches frequent, catarrhal attacks frequent and chronic catarrhs varied by subacute or acute exacerbations. In some cases there is a peculiar itching toxin developed and the patient is seized with intolerable anal pruritis after each passage. As a rule, you will find him firmly convinced that he is "uriacacidemic," and taking some nostrum for that alleged malady.

The electric sigmoidoscope marks as great an advance in the diagnosis of lesions in the sigmoid flexure and upper rectum, as did the laryngoscope in the diagnosis of lesions of the larynx, or the cystoscope in those of the bladder, and it has now become a necessary adjunct to diagnosis in all difficult cases of diseases of the rectum and sigmoid flexure. The nature and location of the lesion can now be definitely located and properly treated.

We find here all the various morbid growths and catarrhal conditions. As in the pyloric end of the stomach so we find in the constricted portions of the sigmoid, the most inviting field. It is here where carcinoma is most frequently found, and as in other parts of the body, is generally

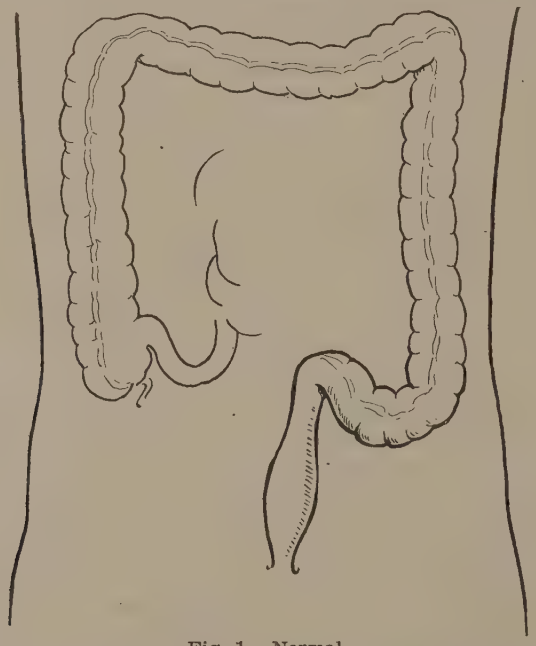

Fig. 1. Normal.

preceded by a prolonged stage of ulceration. Irregularity of evacuation, as to time, quantity or quality should be a signal for investigation. The source of blood should be definitely determined, and any abnormal tissue subjected to microscopical examination. Frequent examination of all exudates taken from various parts of the sigmoid is imperative.

Tubercular and syphilitic ulceration must be differentiated from those caused by a functional or mechanical condition. Not infrequently we find in the sigmoid definite lesions of constitutional diseases before they are suspected elsewhere. Such lesions may only be found in the rectum, and furnish a good illustration of the baneful effects of the indiscriminate use of the enema. What is often a purely local disease and as such yields readily to treatment, becomes a complicated, difficult problem after the infection is carried into the sigmoid and colon.

Rest and *drainage* are the leading factors to be considered in the treatment of sigmoiditis. Dr. S. G. Gant reports a number of cases successfully treated by sigmoidipexy. There are, no doubt, some cases where this procedure is justified by the results obtained, but in many cases relief, and often complete functional restoration can be procured by other methods. Every case must be properly diagnosticated and treated accordingly. I know of no condition in which the coöperation of the patient is of such vital importance. I have histories of eighteen cases treated since July 1, 1906, by the following method, which is best illustrated by giving you briefly the salient points as elicited in the following cases.

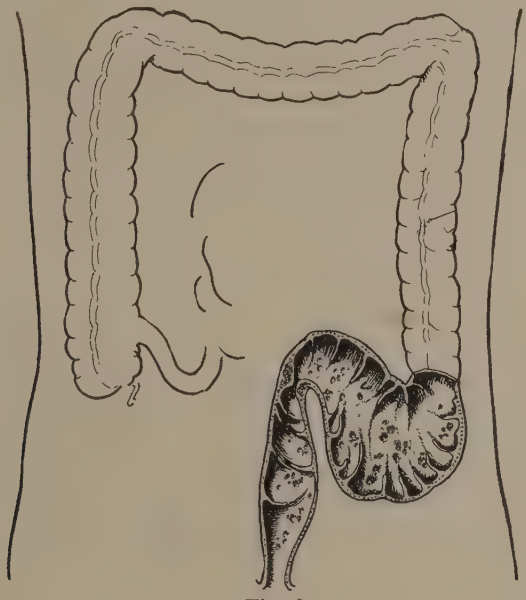

Fig. 2.

Case 1. Fig. II. R. W. M., aged 40, locomotive engineer, first consulted me Sept. 30, 1906. Has not been well for five years, when he gives a history of having had acute dysentery. Family history negative. Has never had any venereal disease. Present weight, 140 pounds; has lost 35 pounds in the last two years. He is anemic, irritable and complains of being tired all the time. Morning temperature subnormal; afternoon and evening record shows elevation of from two to three degrees. Respiratory organs normal. No heart lesions can be discovered aside from temporary functional disturbances. Quantity of urine 20 ounces per day; sp. gr. 1030, acid, no sugar, no albumen; traces of indican and a heavy deposit of uric acid. No desire for food, and great distress after eating. Bowels move from 15 to 25 times during twenty-four hours. Odor of discharge resembles very much that of the feces in the second and third weeks of typhoid fever, multiplied by ten

as to penetration and endurance. Examination of feces shows shreds of mucous membrane pus, blood and partially digested food. Examination with the proctoscope and sigmoidoscope revealed a characteristic and promising field for both surgeon and internist, which must be seen to be appreciated. Ulceration in its various stages from the anus to the descending colon. Marked constriction of the circular fibres of the inferior end of the sigmoid. Made several attempts necessary for a satisfactory exploration.

The treatment in the above case consisted briefly in the following: 1. Dilation of the constriction through the proctoscope by a wales bougie or a rubber dilator, devised and used by Dr. Hirschman, of Detroit, in giving rectal massage for the treatment of constipation. 2. Local applications to the parts, of astringents and antiseptics as indicated at each treatment. If I had but one remedy available, I would unhesitatingly use ichthyol, but I have had good results with the various silver preparations. Bismuth and the sulphocarbolates administered on an empty stomach have aided materially, especially when the disease was not confined to the sigmoid. Food should be nutritious, and must not be irritating as to quality and quantity. After two months' treatment the patient resumed his work, and has not lost one day since on account of illness. A recent communication informs me that he weighs two hundred, and enjoys his work.

Case 2. The following illustrates an acute case, and shows what can be done if the patient is properly treated during the early stage.

Dr. N., aged 45, a busy country practitioner, consulted me Feb. 18, 1907. Early in January of the same year, while attending a number of patients suffering from dysentery, found himself similarily affected. Cathartics, enemas, astringents and opiates gave him but temporary relief. He had lost twenty-five pounds in six weeks, and was totally incapacitated when I first saw him. Examination revealed a catarrhal condition of the rectum, and a constriction at the inferior end of the sigmoid admiting a number three bougie. The constriction was of a plastic nature, and with due precaution was dilated, at once allowing the passage of a number eight wales bougie. The sigmoid at once relieved itself of its burden. After introducing two ounces of a ten per cent. solution of ichthyol in olive oil, the doctor rested one hour and then enjoyed his dinner for the first time in six weeks. He resumed his work in one week and regained his weight in three weeks.

My experience in the treatment of these cases has been largly empirical, as but little creditable scientific work has been done in this field.

After two years' diligent search of the literature I am impressed with the theoretical rather than the practical phase of the treatment of this distressing condition. Many surgeons and internists have distinguished themselves by removing pebbles from the gall bladder, while not a few owe their existence as well as subsistence to the work done in the southeast corner of the abdomen.

Humboldt Building.

MEDICAL AND SURGICAL PROGRESS.

BRACHIAL BIRTH PALSY IN THE NEWBORN.

A REVIEW OF RECENT LITERATURE.

By Hugo Ehrenfest, M. D., St. Louis.

1. Ueber Entbindungslaehmungen der oberen Extremitaeten beim Kinde.—Stransky (*Zentralbl. d. Grenzgeb. d. Med. u. Chir.*, 1902, No. 13).
2. Ueber Entbindungslaehmungen.—Stolper (*Monatsch. f. Geb. u. Gyn.* Bd. XIV, p. 49).
3. The Pathogenesis of Obstetric Paralysis.—Thoyer-Rozat (*L'Obstetrique*, September, 1904).
4. Clavicularfrakturen Neugeborener bei Geburt in Schaedellage.—Hauch (*Zentralbl. f. Gyn.*, 1905, No. 33, p. 1025).
5. Obstetric Paralysis.—Bullard (*Am. Jour. of Med. Sciences*, July, 1907, p. 93).
6. Beitrag zur Frage der Aetiologie der Entbindungslaehmungen der oberen Extremitaeten.—Eversmann (*Arch. f. Gyn. Bd.* 68, p. 142).
7. A Study of Birth Palsy.—Clark, Prout, Taylor (*Am. Jour. of Med. Sci.*, October, 1905).
8. Obstetrical Paralysis.—Thorburn (*Jour. of Obst. Brit. Emp.*, May, 1903, p. 454).
9. Diagnose syphilitscher Extremitaetslaehmungen bei Neugeborenen.—Lewin (Rev. in *Muenchn. Med. Woch.*, 1902, No. 18, p. 761).
10. Kennedy (*Brit. Med. Jl.*, February 7, 1903, p. 298).
11. Results from the Surgical Treatment of Brachial Birth Palsy.—Taylor (*Jour. Am. Med. Assn.*, Jan. 12, 1907, p. 96).

Statistics quoted in many of the modern textbooks of obstetrics place the frequency of brachial birth palsy as approximately one case in 2000 deliveries. Of late, quite generally, the belief is gaining ground that this percentage is too low, because this figure undoubtedly is based upon statistics made in maternity hospitals in which, as a rule, all cases are handled by skilled men, and this factor, as will be shown, materially reduces the number of palsies. But there are many other reasons which preclude the collection of exact statistics. Stillborn babies, obviously, must be excluded from the calculations; light forms of palsy are very often overlooked, and certainly very often not recorded because they recovered promptly. There can not be any doubt that in many of these cases a false diagnosis of fracture or dislocation is made, or a dislocation mistaken for a palsy. Indeed, only of late, with the more general use of the x ray for diagnostic purposes, has it been possible to make a positive diagnosis in obscure cases. It is certainly a noteworthy fact that simultaneously with the improvement in our diagnostic methods and of

our knowledge concerning the etiology of this disease, the belief is steadily growing that brachial birth palsy, while not as common as facial palsy, is a condition not by any means rare in the newborn.

The increased interest in this unfortunate birth injury, manifest in the great number of important contributions on the subject, has evolved two very practical results; firstly, the successful repair of the injury by operation in certain cases, and, secondly, the recognition of the fact that this palsy, in the large majority of cases, is due to improper manipulations on the part of midwife or physician during delivery. That such manipulations might be responsible for this paralysis was suspected for a long time, and finally practically proved so by Prouff and Guillemot (*Ann. de Gyn.*, January, 1897), who reported an *endemie* of thirty cases of brachial palsy in the practice of a single midwife. The appreciation of this fact lead to investigations concerning the cause of this condition and as a result of this labor many theories were advanced. Most of these are detailed in the two very exhaustive papers on this subject which have recently appeared: a collective abstract of Stransky (1), including 90 articles and quoting the histories of 94 cases recorded in literature up to 1902, and a paper of Stolper (2) in which he describes his own investigations and experiments.

From the latter paper I shall quote some interesting data concerning the gradual evolution of our present views regarding the etiology of brachial palsy.

The first casuistic report of a case of brachial birth palsy was published by Danyan in 1851. A still earlier report of a bilateral brachial paralysis by Smellie is too inaccurate for scientific consideration. The first exact description of this condition was furnished by Duchenne in 1871. He, however, limited his observations to prognosis and therapy, making no reference to etiology. Seeligmueller, in 1874, said the forceps could cause paralysis not only of the facial but also of other nerves,—thus by pressure of this instrument against the brachial plexus a paralysis of the upper extremity could be produced. He called attention to the fact that this form of palsy is more common in breech presentation when strong traction or pressure is exerted against the shoulders. Erb's classic paper, which also appeared in 1874, is based upon observations of brachial palsies in the adult. He found as a cause of the symptom complex, a lesion of the fifth and six cervical nerves, and discovered a spot above the clavicle from which contractions in the paralyzed muscles could be produced by the application of the electrode. It is worthy of mention that in adult patients, contrary to the common findings in the newborn, the M. infraspinatus, and the suprascapularis, is only rarely found affected. F. Schultze (*Arch. f. Gyn.* Bd. 32, p. 410) in describing a case, supported Erb's theory, and attempted to prove that the lesion is produced by the pressure exerted upon Erb's point by the clavicle when the shoulder is forcibly elevated and the arm thrown upwards and backwards. In his opinion a strong curve of the clavicle and a lack of adipose tissue favor the development of the paralysis.

The next contributor to the question is Thorburn (1886). He observed a paralysis of the left arm, complicated by a ptosis and miosis of the left eye, the child having been extracted with forceps. He explained the symptom complex as due to a trauma of the sixth cervical and first dorsal nerves above the *rami communicantes* which lead to the sympathicus. In his opinion, the injury is not a simple compression, but an actual tearing of the nerves, the result of hyperextension of the shoulder. Chronologically a paper of Burr, not quoted by Stolper, pub-

lished in 1892, must here be mentioned. Burr advanced the theory, which to-day must be regarded as obsolete, that the palsy is due to an injury of the spinal cord.

Fieux, in 1897 (*Ann. de Gyn. et Obst.,* January), although corroborating Erb's theory concerning the etiology of Duchenne's palsy, refused to accept the idea that the trauma to the plexus was caused by pressure against Erb's point, exerted directly by the blade of the forceps, the clavicle, or the finger of the obstetrician. He holds that the injury consists of a rupture of the fifth and sixth cervical nerves, the result of overstretching. In this Fieux agrees with Thorburn, but he offers a different explanation of the immediate cause of the lesion. If traction is made not in an axial direction, but with the head inclined toward one shoulder (what he terms *tractions asynclitiques*) these nerves are overstretched and partially or completely torn. Only in this manner, in Fieux's opinion can isolated paralysis of the déltoid be explained; but, of course, one must remember, as has been pointed out by Bollenhagen, that in adult cases, even of typical Duchenne palsy, the functions may have been restored in all the affected muscles except the deltoid.

In 1899 Shoemaker (*Zeitsch. f. Geb. u. Gyn.,* Bd 41) repeated the experiments of Fieux and confirms his conclusions. He thinks, however, that in some cases the typical picture of a Duchenne palsy is produced by simple compression of the nerves by the finger, in Mauriceau's grip in breech cases; by the blade of the forceps, or by the clavicle when traction is exerted on the born head. During forceps extraction this unfortunate complication is more likely to occur if, in occipital presentation, the head is too forcibly flexed; or, in face presentation, if it is too strongly deflexed, especially if at the same time the handles of the instrument are pulled in a direction which forms an angle with the axis of the fetal body.

Kuestner's statements in Mueller's *Handbuch der Geburtshilfe,* for some time influenced the opinion of many writers, but to-day they are irrelevant in view of the radiographic methods of diagnosis, and as the result of the advanced knowledge regarding the etiology of brachial palsy. Kuestner did not deny the possibility of a true brachial palsy due to an isolated injury to the nerve plexus, but was inclined to believe that in the overwhelming majority of these cases the actual cause of the palsy was due to a fracture or dislocation near the shoulder. In vain he tried to explain to himself why facial palsies heal so readily, and the brachial palsies prove so refractory to all kind of treatment, indeed remain permanently unrelieved in a striking percentage of cases. "In the case of the facial paralysis it is always hard steel; in the brachial cases, as a rule, the soft finger of the obstetrician which exerts the injurious pressure against the nerve." Thus he seemed forced to his conclusion that in all serious cases, with a more or less permanent destruction or impairment of function, the trauma to the plexus had been complicated by an unrecognized injury to the humerus or a dislocation.

Stolper (2) observed a typical Duchenne palsy subsequent to the forceps extraction of the fourth child of a woman, whose second child, after a spontaneous delivery, had shown the same condition. After having studied most carefully the entire literature on the subject and repeated the various experiments made by preceding investigators on the cadaver, he was able to confirm some of the older theories and to prove the fallacy of others. He formulates his own opinion in the following deductions: (1) Direct pressure of the forceps can lead to brachial palsy only in cases of deflexed head presentation, if the deflexion is not

recognized or the forceps is not applied in accord with the rules for the deflexed head. (2) Direct pressure of the clavicle may cause paralysis if the arm and with it the clavicle is forcibly pulled upwards and backwards. This condition will arise only during the extraction of breech cases or after version, usually in connection with difficulty in freeing the arm. (3) In cases of head presentation the fifth and sixth cervical nerves may be stretched severely, but never actually torn (as is claimed by Fieux!) in an attempt to pull excessively broad shoulders through the pelvic outlet. This is more likely to occur if the head during the extraction is strongly bent laterally, the palsy then appearing on the other side. It is obvious that a small pelvis or abnormally broad shoulders, as *e. g.,* is stated by Oppenheim (*Lehrbuch der Nervenheilk,* 1898, p. 319), will more often necessitate such a forcible extraction. It is probable that this explains the occurrence of a brachial palsy in two infants of the same mother as in Stolper's case. (4) Hard pulling in cases of deflexed head presentation favors the development of palsy, and, therefore, Stolper advises to avoid carefully both further deflexion and lateral flexion, if difficulty with the shoulders demands traction on the born head. (5) It is obvious that nerve injurise may be caused by fractures or dislocations near the shoulder.

In an interesting article Thoyer-Rozat (3) state that to-day it is almost generally accepted that, in accord with Fieux's findings, the elongation and rupture of the roots of the brachial plexus, not simply their compression, are the cause of the brachial palsy. They admit the etiologic importance of asynclitic tractions made in the attempt to free the anterior shoulder from the pubic arch. These writers, however, observed a paralysis produced under conditions which, in their belief, precluded all possibility of elongation or indirect rupture of the roots of the plexus. There was difficulty in the birth of the shoulders. The anterior shoulder became impacted behind the symphysis. The posterior shoulder being more accessible, its arm was disengaged first and brought down. The anterior arm, however, was the one paralyzed, and in this case direct pressure of a finger against Erb's point on the anterior shoulder most probably produced the palsy. For the obstetrician the rule must be derived, to beware of unnecessary asynclitic tractions in cases of impacted shoulders, and at the same time to remember Budin's precept, to carefully avoid pressure on Erb's point.

The conclusions of Stolper's very valuable paper fairly represent the modern views concerning the mechanical cause of brachial palsy. Improper traction on the born head undoubtedly may prove detrimental to the infant; and it seems appropriate to mention in this connection a paper of Hauch (4) in which it is shown that these same asynclitic tractions also may cause fracture of the anterior clavicle lying behind the symphysis.

The common view, especially of neurologists, that brachial palsy is practically limited to cases of breech presentation and instrumental delivery, is untenable. Bullard (5) has investigated a considerable number of cases in the Department of Nervous Diseases at the Children's Hospital at Boston, by sending a request to the attendant physician asking for an account of the delivery and labor. In this manner reports have been obtained of 43 cases. Forceps was used in 28 cases. The head presented in 40 cases, the breech in 3, which certainly represents a strikingly small percentage of breech cases. In 18 cases it was especially noted that the shoulders were held or offered resistance to extraction. On the other hand, it was expressly recorded in 5 cases that the shoulders were not held.

A rather novel suggestion relating to the etiology of brachial palsy is contained in Stransky's paper (1). He lays stress upon the fact that a very large number of these babies undoubtedly are born in an asphyxiated condition. Referring to the generally accepted fact that circulatory disturbances together with toxic conditions play an important rôle in the causation of certain palsies as observed, *e. g.*, in alcoholics, or after a general anesthesia, etc., he suggests that possibly the increased venosity and thus abnormal toxicity of the blood of the asphyxiated newborn, may stand in some relation to birth palsy.

Reference has already been made to the existing dissensus of opinion concerning the exact nature of the injury to the plexus. While Fieux and many others assume an actual tearing of the roots of certain nerves, Stolper and a few insist upon their claim that the injury is limited to the effects of a strong compression. Several recent contributions strengthen the theory of an actual interruption in the continuity of the affected nerves.

In a case of Eversmann (6) a left sided Duchenne palsy developed in a baby extracted after version. Two and one-half months later the baby died with the symptoms of the paralysis unchanged. At the post mortem examination a small tumor was found occupying the fifth cervical nerve, where it received the fibres of the sixth nerve, the tumor including the phrenicus. Microscopic examination established the fact that this tumor was a fibrous callus formed in place of a complete tear of that portion of the nerve.

Clark, Prout and Taylor (7), who operated on a number of these cases and thus gained material for histologic investigations, divided the lesions into immediate and remote. The immediate lesion consists in a tearing of the perineural sheath surrounding and supporting the nerve trunk and the incidental rupture of bloodvessels belonging to it. There is, furthermore, a severance of the nerve strands, more or less complete, depending upon the severity of the case. The remote result is brought about and its extent determined by (a) the healing of the perineural sheath, (b) the organization of the blood clot, and (c) the ultimate contraction of the cicatrix upon the nerve strands, which not only prevents their regeneration but determines a pressure neuritis in those not severed and upon which it may chance to impinge. When pressure alone is the cause of the palsy, there is little pain and spontaneous recovery ensues within a year. When, however, the infant is peevish and irritable, showing signs of pain, tearing has taken place and spontaneous recovery rarely follows.

The character and extent of the injury obviously determines the symptoms in the particular case. Stransky describes the typical picture of a brachial birth palsy as follows: The muscles almost always affected are the deltoides, biceps, brachialis internus, infraspinatus and the supinators, quite frequently involved are latissimus dorsi, teretes and trapezius inferior. The muscles chiefly affected are those supplied by the fifth cervical nerve, to a smaller extent, those controled by the sixth cervical. In about 13 per cent. of the cases the paralysis is limited to the forearm, implying the muscles of the hand and fingers. In these cases, without exception, oculo-pupillary symptoms (ptosis and miosis, the narrowed pupil, however, reacting promptly to light) are present due to the fact that in these cases the injury extends to the root of the first dorsal nerve which contains the roots of the corresponding sympathetic branch. In contradistinction to lesions of the upper portion of the plexus in these cases the reduction or complete absence of sensibility in the forearm is well

pronounced. In a number of instances the palsy has been seen accompanied by a facial paralysis of the same side.

According to Thorburn (8), in the common form—the Erb-Duchenne type—we deal with a paralysis with loss of faradic reaction and subsequently atrophy of biceps, brachialis anticus, deltoides, long and short supinators, teres minor, supra- and infraspinatius. In such cases the shoulder is flaccid, while we find retraction of the eyeball and miosis upon the affected side, from injury to the *rami communicantes* which leave the last cervical and first dorsal roots to join the cervical sympathetic, and thence to pass to the *dilator iridis* and the muscle of Mueller.

Anesthetic areas are not often detected in these cases. In infants anesthesia would readily escape observation, and even in paralysis of the entire plexus it may be difficult to ascertain whether it is or is not present.

As to differential diagnosis, Stransky mentions the following conditions which may produce similar symptoms: Obstetric lesions of the spinal cord, meningeal hemorrhages or other cerebral injuries, and acute infantile poliomyelitis.

From a differential diagnostic point of view, peculiar palsies of the upper extremities are noteworthy which occur in heredo-syphilitic children. Lewin (9) emphasizes the fact that for these cases a peculiar position of the extremities, resembling the fins of a fish *(Flossenstellung)* is absolutely characteristic. The hand is in extreme pronation, its palm looking outwards and backwards, the carpal joint being flexed to a right angle, while the hand is abducted and forms a blunt angle with the ulna.

The treatment of obstetric paralysis of the arm has until recently consisted solely in the use of warmth, massage, galvanism and the like. Thorburn (8) suggested in 1886, arthrodesis at the elbow for certain cases, but in 1905, when he published the paper already quoted, he did not think that this suggestion ever had been carried out. He gives the following data concerning the gradual development of the present surgical methods of treatment of brachial palsy: In a case of rupture of the plexus, due to attempted reduction of a dislocation of the humerus, Wallis (*Trans. Clin. Soc. London,* 1898) successfully resected a mass of nerve callus involving the roots of the plexus. Tuffier performed a similar operation in 1899. Two years previously in a case of complete rupture Thorburn himself had removed, with partial success, a mass of callus involving the entire plexus (*Brit. Med. Jl.,* May 5, 1900). Oppenheimer quotes a case sutured by Lesser. Kennedy (*Glasgow Med. Jl.,* October, 1900), also performed successfully the operation of callus resection with secondary suture. There are numerous cases on record of primary suture of the injured brachial plexus.

Kennedy (10) has extended the operation to obstetric paralysis and has reported three cases in all of which the cicatrix was situated at the junction of the fifth and sixth cervical nerves. Kennedy suggests two months after birth as a reasonable period to wait for spontaneous recovery.

Clark, Prout and Taylor, in the article already mentioned, express the opinion that the nature of the lesion in all cases demands excision of the damaged area and stuture of the divided ends as soon as it is proved that spontaneous repair will not take place. The proper time for surgical interference can not yet be definitely stated. It appears, however, to be much later than two or three months after birth, as advised by Kennedy. At the present time one year would seem a reasonable delay before operation.

In a very interesting paper Taylor (11) deals with the results so far obtained with the surgical treatment of brachial birth palsy. His conclusions are based upon observations made on nine patients. As the immediate result of the operation, in seven cases, an increased area of paralysis appeared, due to the necessity of dividing some normal nerve fibers in excising the cicatricial tissue. In all cases the power lost through operation has been regained. As far as remote results are concerned, improvement in the nutrition of the limb is one of the first signs of regeneration in the sutured nerves. It is evidenced by the appearance of more natural warmth and color. This change usually begins about the end of the fourth month. The return of power in the muscles paralyzed by the operation is usually rapid and may be completed in from six to eight months. The return of function in the previously paralyzed muscles appears in from six to ten months. Systematic after treatment (massage, electricity, passive motion, etc.) is very necessary in order to prepare good mechanical conditions for the exercise of nerve power when regeneration occurs. These same means must be employed from a period shortly after birth till either spontaneous cure occurs or operation seems indicated.

LABORATORY METHODS IN THE DIAGNOSIS OF PANCREATIC DISEASE.

A REVIEW OF RECENT LITERATURE.

By Albert E. Taussig, M. D.

1. The Pancreas, Its Surgery and Pathology.—Mayo Robson and Cammidge, 1907.
2. The Nucleus Test in Pancreatic Disease.—Steele (*Trans. Assn. Am. Phys.*, 1906, p. 347).
3. Note on Diagnosis of Pancreatic Disease with Special Reference to Laboratory Methods.—Musser, Steele and Fife (*Ibid.*, p. 359).
4. Ueber die Untersuchung des Pankreassaftes beim Menschen, etc.—Volhard (*Muench. med. Wochenschr.*, 1907, p. 403).
5. Chronic Pancreatitis.—Deaver (*J. A. M. A.*, 1908, p. 374).
6. Die in den letzten 10 Jahren in der Heidelberger chirurgischen Klinik beobachteten Faelle von Pancreaserkrankungen, etc.—Eloesser (*Mitt. a. d. Grenzg. d. Med. u. Chir.*, 1907, p. 195).
7. Ueber eine einfache Methode zur Pruefung der Pankreasfunktion beim gesunden und kranken Menschen.—Schlecht (*Muench. med. Wochenschr.*, 1908, p. 725).
8. Experimentelle Beitraege zur Diagnose der Pankreaserkrankungen.—Eichler (*Berl. kl. Wochenschr.*, 1907, p. 769).
9. Ueber das Verhalten des proteolytischen Leucocytenfermentes, etc.—Mueller (*Arch. f. klin. Med.*, 1908, p. 199).

Successful surgical interference in pancreatic disease is a matter of very recent development. This is not because of any special difficulty of technique but because it is only of late that early and accurate diagnosis of pancreatic affections has been possible. The physical signs alone, while suggestive, are rarely decisive. Tumor, fever, pain and tenderness, pressure symptoms, hemophilia, jaundice and emaciation may any or all of them be due to other causes. In pancreatic disease, if ever, the surgeon or internist must look for aid to the laboratory worker. Moreover, the routine office examinations rarely suffice. The work must be done by someone with special training if the results are to be trustworthy. Numberless laboratory tests have been suggested for this purpose, though not many have turned out to be of real diagnostic importance. It is the purpose of this article to take up very briefly a few of the most important.

Blood. The blood changes that result from pancreatic disease have not as yet received much attention from investigators, but that they are important and interesting is shown by the profound alterations both morphological and chemical that are met with in serious and advanced lesions and to a less extent in milder types of the disease. The hemorrhagic tendency in pancreatitis has already been mentioned. Estimations of the coagulation time of the blood, made by Cammidge (1) with Wright's method have shown that it may be prolonged in pancreatic disease considerably longer than can readily be explained from

the jaundice that is usually present. The blood picture, too, shows definite changes. In advanced cases there is always a marked anemia, which, however, is characterized rather by a low count than by a great diminution of the hemoglobin, so that the hemoglobin index is high. Leucocytosis may be present or absent. The blood changes, thus, while not characteristic, are suggestive.

Stomach Contents. In pancreatic cancer, the stomach contents usually contain no free hydrochloric acid. Since, however, cancerous conditions elsewhere produce the same phenomenon, this is of importance only if the diagnosis of pancreatic disease can be established by other means. Volhard's test (4), however, is interesting and has a decided, if negative, value. It is based on the fact that the duodenal fluid flows back into the stomach when a large amount of oil or very acid liquid is ingested. He introduces into the stomach about 200 c.c. of olive oil. Fifteen minutes later he aspirates about 100 c.c. of stomach content and, after pouring off the supernatant oil, examines the fluid for trypsin. This can readily be done by adding a few drops to a little milk, rendering the whole slightly alkaline and placing it in the incubator. The clear fluid above the precipitated casein gives the biuret reaction if trypsin is present. While not pathognomonic the absence of trypsin speaks for, and its presence against, pancreatic disease.

Stool. The stools in pancreatic disease are among its most characteristic features. They are exceedingly bulky, soft, greasy and pale. They contain undigested fat and muscle fibre and are extremely offensive. Patients frequently state that they suffer from diarrhœa, but this is usually an error for, although the stools are bulky and soft, they are not liquid in consistency. Such stools are very suggestive of pancreatic disease and Musser (3) for instance is apparently inclined to lay as much stress upon their macroscopic appearance as upon their microscopic and chemical examination. Often, however, similar fatty stools are found in biliary obstruction due to gall-stones, catarrhal jaundice and other hepatic diseases. Some years ago, however, Friedrich Mueller proposed a test consisting in a determination of the degree to which fat is split in the intestine and this method has been carefully worked out and simplified by Cammidge (1). It is based upon the theory that while both bile and pancreatic juice are essential to the proper digestion of meat-fat, the pancreatic fluid alone is responsible for splitting the fat into glycerine and fatty acid while the bile is indispensable for its saponification and absorption. If, therefore, a fatty stool consists chiefly of neutral fat, there is interference with pancreatic function; if chiefly of fatty acids, the pancreatic juice is secreted normally. Cammidge has made careful analyses of the feces in 100 cases of suspected pancreatic disease, many of which came to operation or autopsy, and has found the test to hold true with sufficient regularity to make it extremely valuable for diagnosis. Others are not so sanguine, though apparently none of them have as extensive an experience with the method as Cammidge. Brugsch believes that the presence of bile is necessary to enable the pancreas to split fat and a number of American clinicians (3) seem to have made observations in cases of pancreatic disease tending to substantiate this view.

In a paper read before the Congress for Internal Medicine in 1904, Adolph Schmidt suggested a new method of diagnosis in pancreatic disease, the so-called "nucleus test." He first demonstrated in artificial digestion experiments outside the body that the cell nuclei are digested by the secretion of the pancreas alone and are not affected by the other

digestive ferments. He then devised the method of passing small pieces of meat through the gastro-intestinal tract and examining them for nuclei after their recovery in the stool, in order to determine the activity of the pancreas. In dogs, the test worked out very well. In healthy dogs, the fragments of meat, recovered from the stool, showed complete digestion of the nuclei; in dogs deprived of their pancreas, the nuclei remained intact. In two cases of pancreatic destruction in human beings the nuclei were not digested; in 100 individuals free from pancreatic disease, the nuclei were completely destroyed. Clinically the test is done as follows: Bits of beef, the size of a pea, are hardened in alcohol for a few days, then tied up in a little bag of Brussels net and kept in alcohol until used. They are given with the noon meal and laxatives are administered if necessary to ensure their recovery next morning. If they are retained in the bowel over 18 hours, the nuclei may be destroyed by putrefactive changes. A diarrhœa, on the other hand, may hurry them through before the pancreatic juice has had time to act. This naturally limits the utility of the test. Steele (2) believes it of some value though he thinks that the nuclei may persist as a result of a general lowering of all digestive power without special disease of the pancreas. Cammidge is even more skeptical. The test has probably only confirmatory value.

Eduard Mueller (9) has shown that it is possible by means of Loeffler's blood serum to demonstrate the presence of trypsin in the stool. A little of the latter is rubbed up with glycerine, a few drops of the extract are placed on plates of the ordinary Loeffler-serum and incubated for 24 hours at a temperature of 55-60 degrees centigrade. At this temperature neither bacteria nor the other digestive ferments affect the culture medium. Pancreatic trypsin however digests the serum with the formation of a depression in the plate. In 200 individuals he nearly always found trypsin in the stool, in traces under ordinary circumstances, in larger quantities if there was diarrhœa. This, doubtless, because in the latter case there was less time for the reabsorption of the pancreatic juice in the colon. Schlecht (7) has worked out the method clinically. The patients, after a thorough rectal lavage receive 0.3 gram (gr. v) calomel. A few drops of the resulting stool are placed upon Loeffler plates and incubated at 50-60 degrees C. In the absence of pancreatic disease, the culture medium begins to undergo digestion in an hour or two, while in 24 hours deep holes have usually been eaten into the plates. In a number of cases of pancreatic disease, on the other hand, the stools were found free from trypsin. The test seems to have merit but requires clinical confirmation. It would obviously give information only in cases of entire destruction of the pancreas or complete obstruction of its duct.

Urine. The occasional occurrence of glycosuria in pancreatic disease need only be mentioned. In itself it is not especially significant but where the clinical and chemical picture suggests pancreatic disease, the occurrence of sugar in the urine may serve to clinch the diagnosis. In this connection the occurrence of alimentary glycosuria has diagnostic importance. If 100 grams of grape sugar be administered early in the morning, the urine passed during the forenoon will not contain sugar if the individual be in perfect health. In pancreatic affections a glycosuria will, however, usually occur.

The occurrence of the so-called "Cammidge Test" in the urine of pancreatic disease has been the subject of much discussion during the past few years. It is based on the theory that the urine, under these conditions, contains a substance which when boiled with hydrochloric acid splits off

a carbohydrate, possibly a pentose, that produces a typical crystalline osazone when treated in a rather complicated fashion with phenylhydrazin. There are two modifications of the test, one of which it is claimed is characteristic of pancreatic cancer, the other of pancreatitis. Both tests have been discussed in detail in these columns. Cammidge himself, however, admits that these tests are difficult and somewhat uncertain and has recently brought forward a third modification, the so-called "C-reaction." In this, Cammidge says, the "manipulation is slightly more complicated and still requires a reasonable amount of skill and care, particularly in the details of the experiment, but the result is an absolute one, and is therefore independent of the personal bias of the investigator* * * * In performing the reaction, a specimen of the 24 hours urine or of the mixed evening and morning secretions is filtered several times through the same filter paper. If it is found to be free from sugar and albumen and is acid in reaction, 2 c.c. of strong hydrochloric acid (sp. gr. 1.16) are mixed with 40 c.c. of the clear filtrate and the mixture gently boiled on a sand bath in a small flask fitted with a funnel condenser. After 10 minutes boiling, the flask is well cooled in a stream of water, and the contents made up to 40 c.c. with cold distilled water. The excess of acid is then neutralized by slowly adding 8 grams of lead carbonate. After standing for a few minutes to allow of the completion of the reaction, the flask is again cooled in running water, and the contents filtered through a well moistened, close grained filter paper until a perfectly clear filtrate is obtained. The acid filtrate is then well shaken with 8 grams of powdered tribasic lead acetate, and the resulting precipitate removed by filtration, as clear a filtrate as possible being secured by repeating the filtration several times if necessary. Since the large amount of lead now in solution would interfere with the subsequent steps of the experiment, it is removed, either by a stream of sulphuretted hydrogen or, what we have found to be equally satisfactory and less disagreeable, by precipitating the lead as a sulphate. For this purpose the filtrate is well shaken with 4 grams of powdered sodium sulphate, the mixture heated to the boiling point, then cooled to as low a temperature as possible in a stream of cold water, and the white precipitate removed by a careful filtration. Ten c.c. of the perfectly clear, transparent filtrate are taken and made up to 17 c.c. with distilled water; it is then added to 0.8 gram of phenylhydrazin hydrochlorate, 2 grams of sodium acetate, and 1 c.c. of 50 per cent. acetic acid, contained in a small flask fitted with a funnel condenser. The mixture is boiled on a sand bath for 10 minutes and filtered hot through a small filter paper, moistened with hot water, into a test-tube provided with a 15 c.c. mark. Should the filtrate fall short of 15 c.c., it is made up to that amount with hot distilled water, the added water being well mixed with the fluid by stirring with a glass rod * * * * In well marked cases of pancreatic inflammation a light yellow, flocculent precipitate should appear in a few hours, but in less characteristic cases it may be necessary to leave the preparation over night before a deposit occurs. Under the microscope the precipitate is seen to consist of long, light-yellow, flexible, hair-like crystals arranged in delicate sheaves, which when irrigated with 33 per cent. sulphuric acid melt away and disappear in 10 to 15 seconds after the acid first touches them." It has seemed necessary to state the method in Cammidge's own words and *in extenso* as the details are all-important, but a little consideration will show that the procedure itself is less complicated than its description.

Cammidge himself has found this test so reliable as to fall only just short of being pathognomonic. In 67 cases of pancreatitis the reaction

was always positive. In 16 cases of pancreatic cancer it was negative 4 times. In 117 cases of other diseases it was negative 113 times, while in the urine from 50 healthy individuals it was always negative. Eichler (8) has tested the reaction experimentally in dogs and found it always negative in health and always positive in artificially produced pancreatic disease. Clinicians have not, however, been unanimous in its praise. Oddly enough, the surgeons as a class view the test with favor, some of them with enthusiasm, while the internists are much more skeptical. Mayo Robson (1), Deaver (5), Wm. Mayo, Eloesser (6) and others report good results with the method, while Musser (3), Barker and Steele are disinclined to admit its value. Most of these, however, have worked only with the earlier modifications. Except in Cammidge's hands the improved "C-reaction" has not yet been extensively tested in clinical work.

To sum up then, in pancreatic disease, as in other obscure affections, a diagnosis is usually possible only by utilizing all the diagnostic means at our disposal. Close clinical observation is indispensable, but the aid of the laboratory, too, must almost always be called in. Blood examinations are of doubtful value. The analysis of the fatty stools and the "nucleus test" are useful but not always free from sources of error. The demonstration of trypsin in stomach contents and stool have a negative value in that they prove the pancreas functionating and the pancreatic and common ducts patent. Diabetes mellitus or alimentary glycosuria, when present, may serve to clinch the diagnosis. The Cammidge tests are still on trial, but while the A and B modifications seem open to valid objections, the improved C-reaction is apparently indispensable for the diagnosis of obscure pancreatic affections.

EXPERIMENTAL LUNG SURGERY.

A REVIEW OF RECENT LITERATURE.

By M. B. Clopton, M. D.

1. The Opening of the Pleural Cavity Without Pneumothorax.—Tuffier (International Clinics, 1907, 17, p. 138).
2. Experimental Studies in Lung and Pleural Surgery.—Tiegel (*Mitt. a. d. Grenzgebieten Med. u. Chir.,* Gedenkband f. Mikulicz, p. 789).
3. The Physiological Principles and the Usefulness of Overpressure to Prevent Pneumothorax.—Seidel (*Mitt. a. d. Grenzgebieten Med. u. Chir.,* 1907, Vol. 17, No. 5, p. 184).
4. Experimental Surgery of the Lung.—Robinson (*Annals of Surgery,* 1908, Vol. XLVII, No. 2, p. 184).
5. The Surgery of the Lung.—Friedrich (*Arch. f. Klin. Chir.,* Vol. LXXXII, No. 4, p. 1147).

The new era of lung surgery opened with the impetus of the researches of Sauerbruch, in 1904, which were later followed and opposed in principle by Brauer. These studies had for their object the avoidance of the respiratory and blood pressure risks due to opening of the pleural cavity with the consequent collapse of the exposed lung. To overcome this collapse Tuffier and Hallion, in 1896, had suggested a plan by which they could regulate at will the volume of the lung subjected to artificial respiration after simultaneous openings of both plueræ. This they did by the use of a tracheal tube passed through the mouth fitted with a François Franck canula, through which chloroform was administered after passing through a set of valves which allowed an increase of pressure in the lung. While this was not used for any thoracic operation at that time, much the same principle was subsequently adopted by Brauer. Sauerbruch makes use of an operating room or chamber in which the body of the patient is surrounded by a reduced pressure, the head remaining outside in an atmosphere of normal pressure. Brauer, on the other hand, has the thorax at normal pressure, but the anesthetic is given with the head in a small chamber in which there is an increased pressure, which prevents the lung collapse. The experimental work essential to the satisfactory solution of this question has been abundantly reported, so that abstracts of the more recent work give more of final opinions. The great difficulty of asepsis and care of the animals, about counter-balances the depression of the diseased humans, so that the knowledge gained upon lower animals can well be applied to the pathological conditions in man. The first abstract is given quite full, because in most instances many details are the same with all the experimenters, and are given once for all.

Tiegel used Sauerbruch's decreased pressure chamber for his experiments, as he believes that for long and radical operations on man it is physiologically more perfect and also less liable to accident. The negative pressure is maintained at from 10 to 14 mg. Ether preceded by morphine is the anesthetic, and the animal must be deeply under before the thorax is opened, to avoid the reflex that comes when the costal pleura is touched or a large bronchus incised. Occasional death occurs in large

healthy dogs from acute dilation of the right ventrical, assignable to the increased intrapulmonary pressure. The thorax is opened by a long intercostal incision without rib excision, the elasticity of the cartilages allowing extensive spreading of the ribs where they are held by a fixed retractor. A flap is made of the thoracic muscles which is laid back, and later it is sutured in place, after the pleura has been carefully closed and the ribs lashed together by two or three heavy silk sutures. The same incision is possible in man, except in old people whose cartilages are calcified, when resection of the ribs is resorted to. Plastic operations upon the lung must be done without the aid of deep fixation sutures as they tear through the friable and ever moving tissue, but repair of a defect must be done with a tongue of the lung tissue which closes the defect and is held in place by superficial stitches, which are put in after the surface of the cut has been wiped over with Lugol's solution, which aids the sealing and strength of the plastic closure. Plastic operations are applied to all large wounds in which a bronchus is wounded, or after a foreign body has been removed where no sepsis is feared. If a plastic operation cannot be made, it is sufficient to wipe the raw place with Lugol's solution. Local anemia is obtained either by digital compression, or by using long stomach clamps. The clamping is well borne by the lung, provided it is not too tightly squeezed. Small injuries are not followed by pneumothorax, but are sealed by blood and fibrin. A solution of chloride of iron also seals the alveoli and small bronchi, better even than the Paquelin cautery, and for large wounds these chemical methods must be used as aids. Large vessels and bronchi must be ligated and the wound closed air tight, otherwise pneumothorax follows, which later becomes infected. The pleural suture is best made by running along both sides of the wound just beneath the pleura stitches of heavy cat gut or magnesium, and closing the wound by interrupted stitches that include this lateral stitch. The stitches may be soaked in turpentine, Lugol's solution, or stypticin, to seal the puncture holes. Experiments and clinical observation teach us that large parts of the lung can be resected without respiratory changes. A clamp is used and the lung divided with a knife. A lobe can easily be extirpated if no adhesions are present, by clamping and dividing at the hilus, but if there are plearal adhesions, experimental or otherwise, it is dangerous to free these before dividing the root of lung because of the severe hemorrhage. Catgut must not be used because it is absorbed and the bronchus opens. The legation of the bronchus is always followed by necrosis if only one ligature is used. It is best to have the stump closed by lightly ligating the mass with silk, including the surrounding tissue and vessels which act as a cushion, then peripheral to this is placed a tight ligature and then the remains of the lung structure are sutured over the stumps.

Resection of the lobe is attended by the danger of (1) reflex effects from ligation of the root of the lung, which is most important; (2) loss of air space for respiration, but experimentally it is possible at times to extirpate a whole lung; (3) disturbance of the lesser circulation; (4) imperfect management of the stump, with subsequent pneumothorax. The most critical moment is when the distending lung is removed and the change comes in the lesser circulation due to the cutting down of its size, when the extra load is thrown on the other vessels and capillaries, and at the time of the displacement of the mediastinum. Another danger is the loosening of the thrombi from the stump, causing death from embolus of the other lung. When the lung is excised in whole or in part, to maintain the circulation and to prevent displacement of the mediastinum

and to relieve dyspnœa, it is well to fill the pleura with salt solution before closing the wound.

Foreign bodies in the lung are often beyond the reach of Killian's bronchoscope, and the lung has to be opened to remove them, or an abscess will follow. If they are attacked early, before the infection, using a Sauerbruch chamber, they can be identified by palpation if they are near the surface. To locate them a bronchoscope may aid, or in case of metallic substances, the x ray is of value. If the foreign body is in a principal brochus, or its immediate vicinity, it can be attacked through the fifth interspace behind, near the spine. The wound of the bronchus, after removing the object, is closed with Lembert sutures of silk, and the stitches must not penetrate the mucosa. A lip of lung is tied over the bronchial wound with the ends of the suture threads.

In abscess of the lung 83 per cent. are followed by infection of the pleura, and 13 per cent. are not. In the latter class the chances for operation are best. The two stage operations, where the lung is sutured to the pleura or held by adhesions after irritants, are uncertain. With the lessened pressure cabinet the chest is opened and the lung surface rubbed with gauze and then with Lugol's solution over the area of the abscess, then tightly stitched in place. After a day the chest wall is again opened under lowered pressure and the pressure is gradually brought to normal in the cabinet to see if the adhesions hold. If not a further delay is allowed, but if they hold, the lung is opened with a blunt needle after the pressure is again lowered.

The suggestion for the handling of empyema in the Sauerbruch room is to open the pleura, break down all adhesions, flush with salt solution, at the same time slightly increasing the pressure of the room, but before closing the wound with air-tight bandages without drainage, reduce the pressure to 10 m. g. Dressing should also be done in the chamber.

Pneumothorax is quite frequent and, if of a moderate grade, is usually resorbed. If it does not disappear it should be treated by puncture and aspiration alone, unless there is a severe lesion of the lung or much hemorrhage. Repeated puncture of the thorax is not so good as the prolonged use of a special canula with a valve attachment. Bad injuries should be opened under a negative pressure.

In wounds of the lungs or bronchi that are air-tight, it is not necessary to drain, but in the event of loss of substance, as in resection of a lobe, the chest is filled with salt solution before closing. If the wound of the lung is not air-tight, it is best to drain by using a glass tube with its outer end closed by a finger cot.

Seidel champions Brauer's overpressure apparatus, which he believes is physiologically and practically identical in its workings with the Sauerbruch chamber. The objections to overpressure based on a supposed impairment of the respiratory and circulatory balance, are purely speculative, and by experiments on rabbits and dogs he shows that there is but slight variation from the normal either in respiration or heart rate, that in most instances the blood pressure is raised a little. The apparatus is small and less expensive than Sauerbruch's, and consists of a box in which the head is inserted and anesthesia administered (observation being made through a glass window). The hands and arms of the anesthetist inside the chamber and the neck of the animal are encircled by rubber shields, which permit of the maintenance of an increased pressure by means of a foot bellows with a strong rubber bag that keeps the pressure constant. For small animals this pressure is measured 4 cm. to 6 cm. in a water glass; up to 10 cm. for large dogs,

and 12 cm. for man. This overpressure must be just sufficient to prevent pneumothorax as an increase beyond this point will cause increased blood pressure with change or tears in the lungs, or atelectasia. The success of overpressure does not depend on the distention of the lung, but on the respiration of slightly compressed air without variation in pressure. By comparing his physiologic findings with the published results of Sauerbruch, Seidel concludes that there are fewer variations than when the lower pressure cabinet is used. The mistake is too often made of using too high pressure, and as the intrapleural pressure varies, so the overpressure must be regulated to suit the individual case. Tracheotomy should be avoided. On account of the safety of narcosis and the practicability of the procedure, the overpressure apparatus is, for every purpose, as useful as the Sauerbruch chamber.

Robinson has adopted for animal experiments the increased pressure, but he used, instead of Brauer's box, a mask that fits the animal snugly and anesthesia can be conducted automatically by means of a system of pumps and tubes which are supplied with ether vapor. Besides the attempt to perfect this apparatus, he has proven that most of the objections of Sauerbruch to overpressure are not valid. That is, he shows that under the proper pressure which prevents pneumothorax, respiration remains normal, that no emphysema follows, that pneumothorax does not persist after the wound is closed, provided at the last moment a slight increase of pressure is made. It is not necessary to tracheotomize, and anesthesia has been quite even. There is a loss of body temperature, but this can be avoided by raising the temperature of the surroundings. He performed some thirty experiments on dogs, excising lobes or whole lungs or merely doing a pleurotomy, and over two-thirds of the dogs recovered. This is the best percentage of recovery yet shown in experimental work. Some of the failures in his earlier work were due to a faulty aseptic technique, which he later perfected. He also draws attention to the difficulty of obviating the dead space remaining after an incision. With this apparatus from 4 c.m. to 6 c.m. of water pressure was sufficient usually, but occasionally it was increased to 10 c.m.

Friedrich in his address on lung surgery closes his review of the accomplishments just previous to the Sauerbruch-Brauer period, by giving his experiences with the lessened pressure chamber, and emphasizes the great opportunity that is given by a wide opening of the pleura and the making of an exploratory thoracotomy, when pneumothorax is prevented. Unless the lessened pressure is reduced below — 3 m.m. pneumothorax is certain, between — 3 and — 5 there is a "relative pneumothorax," and between — 6 and — 8 there is an emphysema. For man and animals the state of "relative pneumothorax" is the one best suited for long operations. By a gradual change of the pressure in the cabinet it becomes easy to locate injuries, or pathological conditions in the lung by the change in color and circulation, induration or other differences, which is possible only when pneumothorax is prevented. Attention is called to the fact that great traction on the lung or injury or dragging on the hilus, is followed by stopping of respiration and a rapid sinking of blood pressure. There is a very untoward result from any pressure against the posterior mediastinum. Lung surgery has become a special surgery and should only be practiced by those thoroughly familiar experimentally with the newer methods. In man one runs about the same risk from infection when opening the pleura as when the peritoneum is explored, but the manipulation of the lung and the various operations on the lung require a special fitness and experience.

DIAGNOSTIC AND THERAPEUTIC NOTES.

THE PULSE IN PERNICIOUS VOMITING OF PREGNANCY.—Blain (*Jl. de Med. et de Chir. Prat.*, 1908, No. 10).—At the International Medical Congress held at Rome in 1902, Prof. Pinard made the following statement in regard to pernicious vomiting in pregnancy: "I do not concern myself either with the loss in weight nor with the intensity of the vomiting. The one feature that I observe with the greatest care is the pulse. Numerous observations have taught me that in women affected with intractable, or better, toxic vomiting, pregnancy should be interrupted promptly when the pulse-rate exceeds 100 per minute. If one waits, this measure soon becomes useless because the intoxication of the nervous system proves fatal in spite of a later interruption of pregnancy." The large material of the Baudelocque clinic has apparently confirmed this dictum fully. Seven cases of toxic vomiting in which pregnancy was interrupted according to the above rule resulted as follows: Five were cured completely, one was cured with the appearance later of a peripheral neuritis, one died but here the cause of death was a pneumonia that came on several days after the miscarriage.

THREE DIAGNOSTIC SIGNS IN ERYSIPELAS.—Milian (*Progrès Médical*, 1908, No. 30).—The diagnosis of erysipelas, especially of the face is not always easy. In the Parisian Hospital, devoted exclusively to this disease, cases of acute eczema, of artificial dermatitis, of ophthalmic zona, of dental abscess, of dacryocystitis, even of mumps, are admitted daily with the mistaken diagnosis of erysipelas. Many of these cases resemble erysipelas somewhat closely and the writer's experience has convinced him that the classical signs, described in the text-books, often do not suffice for a diagnosis. The classical sign most frequently absent is the edematous plateau raising the affected area above the level of the normal skin.

In the diagnosis of erysipelas, Milian lays especial stress upon three signs:

1. The sign of maximum involvement at the periphery *(du maximum centrifuge)*; 2, the sign of the ear; 3, the sign of pain upon pressure.

The sign of maximum involvement at the periphery. Erysipelas spreads centrifugally or at least from point to point, so that fresh areas are continually becoming involved, while those originally infected are recovering. It is for this reason that the areas of greatest swelling and redness are located at a distance from the site of infection and at the periphery of the whole region involved. This sign is especially useful when it is necessary to differentiate between erysipelas and an ordinary inflammation, such as a suppurating dacryocystitis, a dental abscess, or parotiditis. These affections may superficially resemble erysipelas, but in them the pain, redness and swelling are at the center of the area involved, not at its periphery. This sign sometimes fails at the very beginning of an erysipelas when only the site of infection is involved. Twenty-four hours later, however, it is usually well in evidence. A possible source of error in interpreting this sign is involved in the behavior of the eye-lids. These structures, as is well known, become extremely edematous throughout their extent as soon as involved and remain so

even when the zone of acute inflammation has passed beyond them. In making use of the sign discussed above, the condition of the eye-lids must therefore not be taken into account.

The sign of the ear. The skin covering the external ear is so closely adherent to the cartilage that subcutaneous tissue may here almost be said to be wanting. It is for this reason that all ordinary inflammatory processes, since they involve chiefly the subcutaneous tissue, are arrested in their spread when they reach the ear. Erysipelas, however, being a dermatitis, spreads readily over the external ear and may by this means be distinguished from dental abscess and the like.

The sign of pain upon pressure. Tenderness to pressure is probably the most constant feature of erysipelas and this tenderness is most marked at the periphery of the area involved. Acute eczema, zona, parotiditis, are not nearly so tender; dacryocystitis, dental abscess and the like have their point of maximum tenderness at the center, not at the periphery of the reddened and swollen area.

CORRESPONDENCE.

LONDON LETTER.

[FROM OUR OWN CORRESPONDENT.]

An annual grant is voted by Parliament in aid of scientific investigations concerning the causes and processes of diseases. The allocation of this grant and the selection of the subjects for research is in the hands of the President of the Local Government Board, who is, of course, assisted by the advice of the Principal Medical Officer of the Board. John Burn's work as President has been a notable success, and the selection made for the current year in this particular matter is a further instance of the keen alertness he always shows for matters of real practical use. The investigations authorized include a further inquiry into the character and differential tests for the micro-organisms found in the throats of scarlet-fever patients. It is pretty generally recognized nowadays that the throat in scarlet-fever, as in diphtheria, is the source of infection, and it will be a very great benefit not only to the profession but to the much-suffering rate-payer if the infectivity of the scarlatina patient can be tested by swabs from the throat as readily as is the case with diphtheria. The prolonged stay in the isolation hospitals of scarlet-fever cases is expensive and, as many believe, quite unnecessary. Protracted and recurrent infection in diphtheria is to be inquired into. Here again it is a moot point as to whether the patient might not get rid of the few Klebs-Löffler bacilli, shown in swab after swab, by removal from the tainted atmosphere of the diphtheria block. Similar protraction and recurrence in enteric fever will be investigated and also the presence of the para-typhoid bacilli in man. Another matter for inquiry, and one which will certainly yield important and, maybe, surprising results, is the rôle of flies as carriers of disease, and also that of vermin. A beginning will be made in a statistical inquiry into the social incidence of disease, the first subject of inquiry being the prevalence of varicose veins and hernia under different social conditions. All these inquiries are placed in the hands of men in the front rank, so that the work done and the information obtained therefrom shall be the best of its kind. Most of the bacteriological work will be carried out at the Lister Institute.

The Annual Meeting of the British Medical Association was held this year at Sheffield and proved a great success. The new President is Mr. Simeon Snell, Ophthalmic Surgeon to the Royal Infirmary, Sheffield, who in addition to his Residential honours was awarded by the Association the Middlemore Prize in recognition of his valuable and important contributions to ophthalmology. In his comprehensive address he devoted particular attention to the question of miners' nystagmus. His own investigations have done much to elucidate the nature and consequences of this "Industrial" disease. He gave an account of some experiments which most conclusively demonstrated that a miner suffering from nystagmus is quite unable to recognize the danger-signal of fire-damp shown by his lamp. This bit of work by itself is of great value as it points out a preventable cause of the terrible disasters entailed in mine explosions. Mr. Snell puts the proportion of miners affected by this disorder at 4 per cent.; other observers give a much higher figure.

The disease is of great medico-legal importance now in this country for it is one of those scheduled for which workers may claim compensation. The ætiology is still obscure and as there is no known method of prophylaxis, the subjects of the disease must be forbidden to work in the mine, not only to cure them of this trouble, but also for the protection of their fellows.

The Address in Medicine was given by Dr. Kingston Fowler, Senior Physician to the Middlesex Hospital and Dean of the Faculty of Medicine in the University of London. It is a thoughtful contribution on the subject of Modern Medicine and is full of matter for careful and earnest thinking. In the main, Dr. Fowler dealt with the advance of vaccine-therapy, and took the position of a pidicious but open-minded thinker on the subject. He has little doubt as to the great advance which the introduction of vaccine-therapy marks in the treatment of the infectious diseases. He made an interesting reference to the system of graduated labor introduced by Dr. Paterson at the Frimley Sanatorium of the Brompton Hospital and the results as shown by the estimation of the opsonic index of the patients undergoing treatment for tuberculosis. Examinations showed that 95 per cent. of the patients working in the various grades of labor ranging from walking, carrying baskets loaded with varying weights of earth, and digging, to working as navvies upon the construction of a reservoir, were found to have opsonic indices above the normal at some time during the day. Dr. Fowler looks forward to a more general use of sanatoriums for a variety of affections other than tuberculosis. As to the physician of the future, he must continue to be, as in the past, above all things, a man of wide clinical experience. He will have to deal with human nature just as all his predecessors have done. The common road that all must tread who aspire to treat disease will lie through the wards, the post-mortem room and the clinical laboratory, and "will always lead back to the bed-side." The address is excellent reading and fully maintains the high standard always expected on these occasions.

The Address in Surgery was delivered by Mr. Rutherford Pye Smith, Professor of Surgery in the University of Sheffield. The key-note was prophylaxis and, as is only to be expected from one of his name, the subject was thoroughly well handled.

The Medical profession in general and Guy's hospital in particular have sustained an irreparable loss by the death of Sir Thomas Stevenson, a man of world-wide reputation in his chosen ground of forensic medicine. He was a most careful and shrewd observer and inculcated the necessity for close observation in his lectures on chemistry and on forensic medicine. A constantly recurring phrase was, "You will observe, gentlemen." He was one of the kindest hearted of men, yet the irony of fate was such that it was his evidence that put the rope round the neck of some of the most cunning murderers for some years past. He was unrivalled in his expert knowledge of medicine and chemistry.

August 20th.

PARIS LETTER.

[FROM OUR OWN CORRESPONDENT.]

The subject of how to protect the organism against exogenic toxic substances, is still in the incipient stage despite the experiments on immunity—experiments from which have issued vaccination and serotherapy. Every day, we might say, we are apprised of new facts, but of these some are so paradoxical, because they fit in so badly with our ideas of the intangible laws, that they may easily be construed into an indignity to our modesty and prudence. Such, for example, is the singular phenomenon that Professor Charles Richet has characterized as anaphylaxis. Taken literally, this word means the opposite of prophylaxis; but before arriving at this conclusion it is necessary to study further its meaning.

Arloing, Courmont, Brieger, Behring, Kitashima, have already observed that the introduction of pathogenic microörganisms into the living body, modifies it in such a way that when subjected to a new infection it succumbs much more readily than if the infection were the first. Now the study of certain poisons really led Professor Richet to his analogous discovery; for the problem which he was attempting to solve was, how progressively to increase one's sensibility to poisons inversely to immunization; that is, against protection.

Though the phenomenon of anaphylaxis may be brought on by a number of substances (poisons and toxalbumins) it can be observed to a nicety in all cases where the poison is derived from Actinia. Richet has extracted from the Actinia a poison which he calls *congestin* on account of the quality it contains to cause an intense congestion of all the abdominal viscera—stomach, liver, kidneys, and, above all, the intestines. After determining its degree of toxicity, he injects into dogs doses not fatal; and in case a dog apparently immune, completely recovers from the first injection—even showing an increase of weight—he injects, from four to eight weeks after the first injection, a dose equal to one-twentieth of the first. Immediately, or at least after some seconds, there appear symptoms of intoxication of extreme gravity, ending in complete paralysis with absolute insensibility of the animal. It is this hypersensibility to the poison which is created by the first dose, that Professor Richet calls anaphylaxis.

Another important fact is this, that when the blood of an anaphylactic animal is injected into a normal dog there is started the phenomenon of anaphylaxis. Therefore it is evident that the substance which produces this phenomenon is contained in the serum of the originally injected animal. But this substance is not a true toxin since in itself it is not toxic, for the dog continues in good health despite the slight disturbance following the injection of the serum. On the other hand, it is undoubtedly capable of developing into a poison if it is followed up by further doses to which the congestin is antagonistic. "Then it is not a toxin," says M. Richet, "but a toxogenin;" and he demonstrates the fact of its presence in the following two ways: First, the dogs which received an injection prior to the elapse of forty days, have, when another injection is made, vomiting and paraplegia,—disturbances which should manifest themselves only after the second intravenous injection. Hence, another poison is produced. The author calls this *apotoxin* (a derivative of toxin) and further states that it is completely different from toxogenin or toxin. Second, the serum from anaphylactic dogs contains toxogenin because normal dogs that have received an injection of anaphylactic serum have

almost the same sensibility as anaphylactic dogs. Again, anaphylactic dogs are put in a state of sensibility by three small doses of congestin—that is, at the moment when there is no congestion in the organism. Hence we can conclude, that the moment of the appearance of toxogenin is coincident with the disappearance of toxin.

One can readily understand the importance of these experiments directly we transport them into the domain of clinical medicine; for the evolution of infection, for example, would be decidedly modified if an organism were subjected first to an injection similar to the infection which develops. Vaccinia and variola, notably, have been objects for investigation from the standpoint of anaphylaxis. Von Pirquet of Vienna, who has recently published a monograph on the subject, states that revaccination produces characteristic symptoms; that by comparing the evolutionary processes of the pustule produced by vaccination and the pustule by revaccination, the latter is more evident than the former; and that after many inoculations the hypersensibility is sometimes so marked that the papule forms some twelve hours after inoculation. Thus, from the standpoint of anaphylaxis, variola appears to present all the salient points of resemblance with vaccinia in an intensified form. And perhaps varioloid is but an anaphylactic modification of variola.

It is needless to add that the anaphylactic phenomena will have a decided bearing on infection by the tuberculosis bacilli. Further, it can be said without reservation, that in the near future the tuberculosis problem will show far-reaching results in a therapeutic sense. Syphilis, scarlet and typhoid, should also be included.

The study of this matter then, being of the greatest interest from the standpoint of pure therapeutics, should be thoroughly examined with a view to pathology and general therapeutics, because of the probability of finding, according to M. Richet, an explanation of the strange and as yet imperceptible phenomena which to-day are called idiosyncracies. This term is employed to designate the differences in reaction of divers individuals, but, though quite learned in appearance, poorly disguises a deplorable ignorance. In recognizing that an anaphylactic dog is more liable to an infection than a normal dog one understands the cause of its hypersensibility since a poison has been used to bring about this state. On the other hand, if the cause is ignored, as frequently happens in clinics, one is forced to conclude in explanation of this apparent anomaly, that the hypersensibility is due to an idiosyncracy. Therefore, we may add that the study of anaphylaxis will be the means of throwing considerable light on very obscure phenomena.

August 20th.

OBITER DICTA FROM FOREIGN JOURNALS.

THE INSANITY OF GUY DE MAUPASSANT.

In connection with the article which Albert Schinz, professor of French literature at Bryn Mawr College, recently published on the last days of the well-known French writer, Guy de Maupassant, it would be well for medical men to peruse carefully the following scientific, if less literary, paper by MM. Rémond and Voivenel, which we reproduce in full from *Le Progrès Médical* of May 30th. Professor Schinz, borrowing his idea of Maupassant's mental derangement from French literary sources, is quite emphatic in proclaiming it to have been general paralysis of the insane. That he and other well-known critics are in the wrong is made evident by the French physicians:

Maupassant wrote even in the last period of his insanity. The first manifestations of a nervous derangement appeared in 1875, and between this date and 1893, the year of his death, his greatest works were written. Hence a study of his psychosis is not without value as a means of comprehending his books, and of explaining satisfactorily his actions towards the close of his life; in particular, the series of law suits he instituted against various publishers.

Much has been written on the subject of this author. Medico-psychological studies of well-known writers are the fashion nowadays; therefore it is well to mention here Lombroso's "Souvenirs of Maupassant: His last Illness, his Death" (Souvenirs sur Maupassant: sa dernière maladie, sa mort. Rome: Bocca frères, 1905) and Edouard Maynial's "Life and Work of Guy de Maupassant" (La vie et l'oeuvre de Guy de Maupassan, édit. du *Mere. de France,* 1906). The former is too diffuse and is moreover badly arranged as are all the books by this romancer of medicine; while the latter, though precise and well-written, is most defective as a medical study. Then there are the articles by Cabanès (Guy de Maupassant chez le Dr. Blanche. *Chronique médicale,* 1897), by Mme. Alphonse Daudet (Souvenirs et impressions, *Revue de Paris,* 1897), by Faverolles (*Gaulois* 12 octobre 1897), by Ad. Brisson (L'enfance et la jeunesse de Maupassant. *Le Temps* 7 décembre 1897), by Paul Marion (Guy de Maupassant. *République Française, 22* mars 1904), and by Max Nordau (Vus du dehors), which do not touch on the diagnosis of his neurosis; and J. Grasset's "The Semi-insane and the Semi-responsible" (Demi-fous et Demi-responsables, p. 145—F. Alcan, 1907), in which the author contents himself by stating that Maupassant was confined to a sanatorium, that his psychoneurosis covered many years, and that he had hallucinations. Some of these writers assert that the gifted author's mental state was normal for a number of years and that the first manifestations of a mental disorder became evident during the period in which he wrote the weird and grewsome fantasy, "The Horla." Others are of the opinion that he was a degenerate from birth; Nordau, ever ready to be unjust to the literati, going so far as to affirm that he is able to find traces of his constitutional insanity in his earliest books. As for Zola, Lemaître and Roujon, they are just as enthusiastic in stating that Maupassant's mind had unusual strength and clarity, save at the close of his career. Again there are some who, taking into consideration the disordered activity which the author showed before

he became a megalomaniac, regard his symptoms as those of general paralysis of the insane. Now despite these many opinions we have arrived at other conclusions—conclusions which, based as they are on a study of the author's antecedents, his life, his work and his death, make us firm in our opinion that the diagnosis of his malady must resolve itself into progressive systematized delirium.

Progressive systematized delirium, known anatomically as leucoencephalitis (Maladies mentales—A. Rémond, de Metz), begins generally, as in the psychosis of Maupassant, about the thirtieth year. The subject, easily fatigued, resembles a melancholic, however, with this difference—and this is important to remember—that he searches in his surroundings for an explanation of his malady, while a melancholic always finds it within himself. Four periods which have been thoroughly studied by Magnan and Sérieux (Le délire chronique: collection Léauté, Paris, Masson, 1892) are evident in the evolution of chronic delirium into the systematized sort. The first period, or period of incubation, is generally unperceived and is characterized by restlessness; the second period, or period of beginning systemization, has for its salient feature the troublesome preoccupations of the delirium of persecution; the third period, the period of accentuated systemization, is the delirium of grandeur; and the fourth period is marked by terminal dementia. Now these four periods are to be found with all their characteristics in the mental disease which afflicted Guy de Maupassant. That there was a predisposition can not be doubted, for his mother was highly nervous, sensitive to excess, and very intelligent; while his father was a voluptuary from whom the author inherited his numerous excesses—enormous appetite, sexual excesses, and an inordinate indulgence in morphine, ether, and hashish.

The first period, or period of incubation in Maupassant's insanity, with its characteristic of restlessness, began about 1878, an epoch in which "the robust provincial citizen" gave evidence of being "a sad and melancholy giant." In his novel "Strong as Death" (Fort comme la Mort) he writes: "I ask myself continually if I am not ill, for I have only disgust for what I used to do with considerable pleasure. My brain is an arid waste, my eye has lost the sense of sight, my hand its cunning. These futile efforts to work exasperate me. What ails me? Have I got failing sight, brain fag, weakening of the artistic faculty, or atrophy of the optic nerve?" And here, by the way, it would be well to mention that in 1878 Dr. Landolt noticed a decided inequality in his pupils.

Instead of showing the expansion so frequently observed in the beginning of general paralysis, Maupassant became a prey to an incurable sadness. In fact so great was the obsession that he absented himself from everything that might deprive him of his solitude. Here are his own words: "I would rather be alone, in fact, so remote from society that even the possibility of others, though they be strangers, sleeping under the same roof with me, could be done away with. I can not live in Paris on account of an indescribable agony. The swarming crowds around me, even when I am asleep, torture my body, my nerves; in a word, they completely destroy my moral nature."

When the second period, or period of commencing systemization, gradually developed with Maupassant, his troublesome preoccupations assumed a decided form. He imagined himself the victim of an exploitation on the part of publishers; he found fault with everything and everybody: his disgust of life evidencing itself in his many grievances

of which the best manifestation was his innumerable lawsuits. Hallucinations tormented him; the first being of an auditory nature, excellently described by himself in his book "On the Water" (Sur l'eau) as a voice "surcharged with terror and dismay, awakening the frightful distress which lies dormant in the heart of the living." Then followed hallucinations of taste, of sight; similar to Alfred de Musset he presented the phenomenon of autoscopy. Sollier touches on this in the following: "Seated, one day, at his desk in his study, Maupassant thought he heard the door open. His servant had orders never to allow any one to enter when his master was busy. The author upon turning around was not a little surprised to see his own self seated opposite himself, his head resting on his hand in the act of dictating all that he (Maupassant) was writing. When Maupassant finished, he arose, whereupon the hallucination disappeared."

The systemization grew more and more salient in the third stage. Maupassant made all sorts of accusations against friends and acquaintances, even going so far as to hold them responsible for his mental depression. In 1888 he brought suit against the literary supplement of the *Figaro* for Bowdlerizing one of his articles. In 1891, he sued Havard, his publisher, because the edition of "La Maison Tailleur" was exhausted. The same year he had a suit on his hands with a New York journal. By logical deduction he believed himself a very important personage; as was instanced when the publication of his portrait without his authorization sufficed to make him enter suit against the publisher, Charpentier, in 1890. Now this is not at all characteristic of general paralysis of the insane. To further show his delusions of grandeur the following excerpt from Goncourt's Journal (vol. VIII.) ought to suffice: "Maupassant spoke of a visit which he had paid to Admiral Duperré on the Mediterranean coast, and the cannon salutes fired in his honor. He was quite sure that the melinite used amounted to many hundred thousand francs. The most extraordinary part of this recital was that some time after, Admiral Duperré stated he had never met or seen Maupassant."

Finally, we arrive at the fourth stage in Maupassant's paranoia—namely, dementia. He imagines he has a dual personality similar to his tale "The Horla;" that two individuals co-exist in him. He feels himself possessed; a demon, the Horla, is his master. He creates, as is not unusual with those afflicted with progressive chronic delirium, a neologism (Wahl—La phraséologie de certains degénérés. Archives de Neurologie, fevrier 1907) which may be described as hostile to order and synthetic of the whole group of phenomena. The letters he writes in 1891 are, according to Maynial, "characterized by mistakes in orthography and French, by unfinished phrases, by contradictory statements, and by wrong words, manifestly written instead of the right ones." The dementia increases; he attempts suicide with a paper-cutter, and in a moment of lucidity requests to be sent to an asylum. At this place, he talks incoherently. He refuses to eat the grapes sent him by Mme. Lecomte de Nouy, declaring "amidst bestial laughter" that "they are copper. Lombroso says "one day, Maupassant stopped in front of a flower-bed and planting a branch of a tree, said to his attendant: 'Let us plant it here and nowhere else because next year instead of a tree you will find on this very spot many Maupassants.'" And according to Pol Arnault at times he did not recognize his friends and often became so violent that a straight-jacket had to be placed upon him.

When we take into consideration the facts that Maupassant's mental disease began in 1878 and terminated in 1892, that there were periods of restlessness, of systemization, of delirium of grandeur, of dementia; and that in its evolution—which by the way was too long drawn out to confound his ailment with general paralysis of the insane—it assumed the character of paranoia querulens with the classic hallucinations of sight and hearing, we can not but conclude that the mental disturbance afflicting the author, was progressive systematized delirum. The absence of an autopsy prevents us from saying positively that our diagnosis is correct, but the clinical history of the case makes us firm in the belief that, according to the anatomo-pathological classification of the psychoses, the disease was leucoencephalitis. And furthermore, the systematized mental disorder, developing into a leucomyelitis, a tabes, started in the nerve fibres and only later involved the cells.

HISTORICAL NOTES.

THE DENTIST, WITH A BOY, WHOSE TOOTH HE HAS JUST EXTRACTED.

That the art of dental surgery has made many advances since the end of the seventeenth century is graphically shown in Gerard Dou's masterpiece, "The Dentist." Decamps in his "Biography of Dutch Painters,"

THE DENTIST (Gerard Dou, 1672).

calls the artist the greatest of the "Little Masters" of the Dutch School, and if infinite pains and truth to nature stand for anything in the world of art, we are not far wrong in regarding this picture as one of its best

expressions. But it is more than this to those students of medical history who are interested in the low beginnings of one of its branches, for here we have the bald facts pertaining to an embryonic stage of a science which to-day has reached heights undreamed of years ago.

Though we of to-day do not know what views Gerard Dou held as to the seriousness of the art of dentistry, his pictorial representation, as judged by the modern spirit, cannot but proclaim that aside from brilliance and vigor, the artist's observation of experience in dentistry must have been keen enough to make him intensely appreciative of its comic phases. The *al fresco* performance, so indicative of the spirit of the times as it prevailed in the Seventeenth Century, the triumphant expression on the dentist's face, as he holds the offending tooth on high,—an expression assumed, we imagine, to impress the interested audience of bystanders with the idea that they were really in the presence of one of unexceptional force and expansion; the sheepish look of the patient, which can easily be resolved into a combination of partial relief and nascent fear lest the tooth is still in his head, though somewhat qualified by the thought that perhaps "he had won through, in the end, to peace and security," are such truth-telling bits of humor that, by comparison, the written page of a similar incident in the daily career of a seventeenth century dentist would pale into insignificance.

The worst abuses which have characterized any age are always put to flight by ridicule. Serious thought may after laborious efforts awaken the masses to vitiations which their *laissez-faire* has allowed to exist, but the sudden wrench from a calm security is always effected by wit tinged with mordacity and acrimony. And looking at Gerard Dou's pictorial presentation of primitive dentistry, we cannot but think,—though the literary evidences of the age bearing on his life are not illuminating.—that besides being a careful and painstaking painter of *chiaoscuro,* he had within him the deeper knowledge of the laughing philosopher who knows that a barb, if pointed with the nettles of humor, is much more far-reaching than all the invectives a serious pen might indite.